STUDY20010059 – Title Validation of a novel foot offloading device

Clinical Trials.gov number- NCT04378270

IRB protocol approval- 12/10/2021

Principal Investigator- Jeffrey Gusenoff, MD

PittPRO | Pitt Protocol Review Online

Date: Wednesday, September 21, 2022 10:17:12 AM Print Close

View: Pitt SF: Basic Study Information 8.2

Basic Study Information

1. * **Title of study:**
   Validation of a novel foot offloading device

2. * **Short title:**
   Validation of a novel foot offloading device

3. * **Brief description:**
   Pressure offloading is often considered the most crucial aspect in healing after a foot injury. The investigators have devised a novel foot offloading device (PopSole™) which will allow for customization of the area where there is foot pain, as well as allow for customizable arch support and elevation of the metatarsals. This validation study is aimed to assess improvement of pain with use, ease of use, fit and feel, compliance, and durability over a 4 week period. Validated patient reported outcome measures will be used at baseline, 2 weeks and 4 weeks.

4. * **What kind of study is this?**
   Single-site study

5. * **Will an external IRB act as the IRB of record for this study?**
   ○ Yes ● **No**

6. * **Local principal investigator:**
   Jeffrey Gusenoff
   * **Is this your first submission, as PI, to the Pitt IRB?**
   ○ Yes ○ No

7. * **Does the local principal investigator have a financial interest related to this research?**
   ○ Yes ● **No**

8. **Attach the protocol:**
   - Sponsor/Multicenter/Investigator-initiated protocol
   - Coordinating Center supplement
   - Emergency Use Consent/ Protocol/ FDA Form 3926
   - Exempt Application form

   Document Category Date Modified Document History
   There are no items to display

View: Pitt SF: Funding Sources (not integrated with Grants)

Funding Sources

1. * **Indicate all sources of support:**
   Internal funding

2. * **Provide the source of your Internal funding:**
   A Coulter Translational Research Partners II Program Grant from the University of Pittsburgh Department of Bioengineering

Study Team Members

1. * **Identify each person involved in the design, conduct, or reporting of the research (includes PI):**

Name	Roles	Department/School	Affiliation	Involved in Consent	Qualifications
Jeffrey Gusenoff	Principal Investigator	U of Pgh | School of Medicine | Plastic Surgery	Pitt faculty	yes	Jeffrey Gusenoff, MD is a plastic surgeon at UPMC who specializes in foot fat grafting. He has expertise in advising patients how to offload these re... view all
Beth Gusenoff	Co-investigator	UPMC | Hospital Divisions | Other	Pitt faculty	yes	Beth Gusenoff, DPM is a podiatrist responsible for foot care and healing.
Danielle Hildebrand	Co-investigator	UPMC | Other	UPP/UPMC staff	yes	Danielle is a physical therapist specializing if foot and ankle rehabilitation at UPMC Lemieux. She sees numerous patients with plantar fasciitis and... view all
Anne Lindsey	Secondary Study Coordinator	U of Pgh | School of Medicine | Plastic Surgery	Pitt staff	yes	Anne Lindsey, BA, is a clinical research coordinator within the department of plastic surgery. In her previous position, she had several years of mo... view all
Rebecca Parsons	Co-investigator	Other	UPP/UPMC staff	yes	Rebecca Parsons, Pa-C. Ms. Parsons is a certified physician assistant with 3 years of experience in an Orthopedic surgery practice. She will assist t... view all

Name	Roles	Department/School	Affiliation	Involved in Consent	Qualifications
Eleanor Shirley	Secondary Study Coordinator	U of Pgh | School of Medicine | Surgery	Pitt staff	yes	Eleanor Shirley, MA, Department of Plastic Surgery Ms. Shirley has experience as a research coordinator in multiple different disciplines. She has e... view all
Patsy Simon	Co-investigator	U of Pgh | School of Medicine | Plastic Surgery	Pitt staff	no	Patsy Simon, RN, BS, CCRC, CCRA, ACRP-PM Director, Regulatory and Clinical Affairs, UPMC Center for Innovation in Restorative Medicine, Department of... view all

2. **External team member information: (Address all study team members in item 1. above and leave this section blank)**

Name	Description
There are no items to display	

3. **Have you,** Jeffrey Gusenoff**, verified that all members of the research team have the appropriate expertise, credentials, training, and if applicable, child clearances and/or hospital privileges to perform those research procedures that are their responsibility as outlined in the IRB application?**

* ◉ **Yes** ○ No

Study Scope

Check all that apply

1. * **Will this study actively recruit any of the following populations?**
   - ☐ Adults with impaired decision-making capacity
   - ☐ Children (under the applicable law of the jurisdiction in which the research will be conducted (<18 years for PA))
   - ☐ Children who are Wards of the State
   - ☐ Employees of the University of Pittsburgh/UPMC
   - ☐ Medical Students of University of Pittsburgh as primary research group
   - ☐ Students of the University of Pittsburgh
   - ☐ Neonates of uncertain viability
   - ☐ Non-viable neonates
   - ☐ Non-English speakers
   - ☐ Nursing home patients in the state of Pennsylvania
   - ☐ Pregnant women
   - ☐ Prisoners
   - ☑ N/A

2. * **Will any Waivers be requested?**
   - ☐ Waiver/Alteration of Consent
   - ☐ Waiver to Document Consent
   - ☐ Waiver/Alteration of HIPAA
   - ☐ Exception from consent for emergency research
   - ☑ N/A

3. * **Will this study involve any of the following?**
   - ☐ Specimens
   - ☐ Honest Broker to provide data/specimens
   - ☐ Return of Results to Subjects or Others
   - ☐ Fetal tissue
   - ☑ N/A

4. * **Will Protected Health Information be collected?**
   - ☐ Pitt medical records
   - ☑ UPMC medical records
   - ☑ Other Institutions' medical records
   - ☐ N/A

5. * **Other Requests?**
   - ☐ Deception (if not Exempt, also requires Waiver/Alteration of Consent)
   - ☐ Emergency Use / Single Patient Expanded Access (using FDA Form 3926)

- ☐ Placebo Arm
- ☐ Withdraw from usual care
- ☑ N/A

6. * **Determining Scientific Review:**
Department Scientific Review (DOD requires departmental review)
* **Choose the appropriate organization to conduct the scientific review:**
U of Pgh | School of Medicine | Surgery | Plastic Surgery

7. * **Has this study (or substantially similar study) been previously disapproved by the Pitt IRB or, to your knowledge, by any other IRB?**
○ Yes ● **No**

Review the HRPO policy, if participating in research at the VA Pittsburgh Healthcare System or using funding from the VA

8. * **Does the study use an approved drug or biologic, use an unapproved drug or biologic, or use a food or dietary supplement to prevent, diagnose, cure, treat, or mitigate a disease or condition?**
○ Yes ● **No**

9. * **Does the study evaluate the safety or effectiveness of a device (includes in-vitro laboratory assays)?**
● **Yes** ○ No

10. * **Is this application being submitted to convert an approved study from OSIRIS to PittPRO?** (Tip Sheet)

○ Yes ● **No**

11. * **Does your research protocol involve the evaluation or use of procedures that emit ionizing radiation and, after reviewing this** HUSC guidance, **does your research protocol require HUSC review? (If yes, upload the** HUSC form **in the Local Supporting Documents section). If you are unsure of review requirement, select yes.**
○ Yes ● **No**

Research Sites

1. **Choose all sites that apply:**
   UPMC

   *** Select the UPMC sites where research will be conducted:**
   Other UPMC Site- Specify below:

   List the Other UPMC sites:
   UPMC Lemieux Sports Medicine Complex
   8000 Cranberry Springs Drive
   Cranberry Twp, PA 16066

   UPMC Aesthetic Plastic Surgery Center
   3380 Boulevard of the Allies
   Suite 180
   Pittsburgh, PA 15213

2. **Describe the availability of resources and the adequacy of the facilities to conduct this study:**
   The PI has adequate resources to manage the storage and distribution of data for this clinical trial. The PI has adequate space to conduct the research activities, allowing for space appropriate for the disclosure of private information (e.g., interview or exam room). We have adequate safeguards for the research staff and participants within the facilities and ability to handle emergency situations should they arise. We have adequate space for storing data to maintain the confidentiality for the participants of this study and we do not anticipate any issues with the availability of resources and the adequacy of the facilities to meet the needs for this clinical study.

View: Pitt SF: Devices

Devices

1. * **List each device in the study that will be evaluated for safety or effectiveness:**

	Device	Purpose	Type	Attachments
View	PopSole™ Offloading Device	This is an external insole device that fits into a shoe and is reusable for a given subject, not for one-time use. It is comparable to other off-the-shelf insoles readily available and presents minimal risk to the participant. The device falls under a non-significant risk category as the device is 1. Not intended as an implant. 2. Not to be used for sustaining or supporting human life. 3. Not for a use of substantial importance in diagnosing, curing, mitigating, or treating disease. 4. Does not present a potential for serious risk to health, safety or welfare of a subject.	AbbreviatedIDE	

2. **If applicable, identify each investigational device exemption (IDE) number:**

IDE Number	IDE Holder	Other Holder
There are no items to display		

3. **Attach files:** (attachments may include justification of risk determination, FDA correspondence and if the holder of the IDE is a University of Pittsburgh based, sponsor-investigator, attach both the FDA acknowledgement letter and approval letter)

Document	Category	Date Modified	Document History
There are no items to display			

4. * **Describe your plan to manage devices so that they will be used only on subjects and be used only by authorized investigators:**

The device will solely be used under GCP guidance and in compliance with the study protocol. Within this research the PI and appropriately assigned individual(s) of the study team will implement and adhere to all the necessary controls demonstrating device accountability as demonstrated through a "chain of custody" approach. This approach will be demonstrated through record maintenance for device delivery, inventory, storage controls, distribution, subject use and return to inventory or alternate disposition of unused devices at the trial site. The Physician Investigator will ensure that the study device will be used only in accordance with the approved protocol and that all research team members that are tasked through the delegation and authority log are appropriately trained on the correct use of the device, per the protocol and device use instructions, as appropriate.

Click **Continue** as this page was intentionally left blank.

Recruitment Methods

*** Will you be recruiting individuals for participation in this study?**
● **Yes** ○ No

1. *** Describe who will be recruiting individuals for participation for this study:**
   Dr's Jeffrey and Beth Gusenoff, and Danielle Hildebrand will recruit participants.

2. *** Select all methods to be used for recruitment:**
   Directly approaching potential subjects (in-person)
   Flyers/Posters or Brochures
   Pitt+Me
   Telephone scripts

3. *** Provide details on your recruitment methods:**
   Potential subjects will be recruited from the PI's clinical practice. Patients presenting for foot pain and deemed candidates for the intervention, will be identified and asked about their interest in participating in the clinical trial. No "cold-calling" techniques will be utilized. Subjects may also be identified by either UPMC Orthopedic Foot and Ankle Specialists, physical therapists, or community podiatrists. Dr.Gusenoff, through discussions with these clinical services, has and will continue to facilitate an awareness of this study. If the potential subject is referred to Dr. Gusenoff's practice for participation in this study, the initial introduction is from the physician or clinical care team who is known to the potential participant. If the potential research subject at these practices indicates an interest in study participation, s/he should be instructed to either (a) contact the investigators directly or (b) permit the individual who initiated this contact to share with the research team the person's interest in study participation so that the researchers can subsequently contact the potential subject via telephone screen call and provide more information about the study. The information collected during the screening phone call is 1) an introduction of the study; 2) the research coordinator will read from the screening script with the pre-screening criteria (see attached) and obtain and document the subjects' verbal consent to be asked the screening questions for evaluation of the inclusion and exclusion criteria, 3) if the potential subject meets this criteria the potential subject's information will be reviewed with the PI for further action. The PI, with input from the study team, will make a final determination on continuing the evaluation process and the potential subject will be re-contacted to schedule the screening visit.

   If the subject does not meet inclusion criteria, all the information collected during the telephone screening will be destroyed and the subject will be informed of this activity at the time of the phone screening.

4. *** Describe all compensation/incentives offered to participants and timing of these offers:**
   This applies for cohort 1. $100 will be offered to participants who complete the four-

week study including an in-person baseline visit, 2-week visit, and a final 4-week visit. The subject will be reimbursed using the UPMC "Vincent" system at the time of each visit. All participant reimbursement will be provided through Vincent Payment Solutions processing.

This applies for cohort 2. $100 will be offered to participants who complete the 3-month study including $25 for the one-month visit, $25 for the two-month visit, and $50 for the final three-month visit. The subject will be reimbursed using the UPMC "Vincent" system at the time of each visit. All participant reimbursement will be provided through Vincent Payment Solutions processing.

5. **Recruitment materials:** (attach all material to be seen or heard by subjects, including advertisements and scripts)

	Document	Category	Date Modified	Document History
View	Insole Flyer 02.26.20_Version_0.01.doc(0.02)	Recruitment Materials	2/26/2020	History
View	PopSole2 Telephone Script(0.02)	Recruitment Materials	2/11/2020	History

Study Aims

1. * **Describe the purpose, specific aims, or objectives and state the hypotheses to be tested:**
The investigators will perform a prospective validation study utilizing PopSole™, a novel fully customizable shoe insert, to assess the relief of foot pain. We will assess the fit, feel, ease of use, and durability of the device.

   Aim 1: We aim to evaluate a novel foot offloading device for patients with foot pain to decrease pain and improve activities of daily living. This will be achieved through questionnaire and survey collection for patient reported outcome measures.

   Aim 2: We aim to demonstrate ease of use, feel, durability, and compliance with the device. A survey will be used to obtain this outcomes data. pain) when using the PopSole™. Validated patient reported outcome measures will be utilized.

2. * **Describe the relevant prior experience and gaps in current knowledge including preliminary data. Provide for the scientific or scholarly background for, rationale for, and significance of the research based on existing literature and how it will add to existing knowledge:**
Keeping people off their feet for an extended period of time to heal a foot problem is extremely challenging, and a major cause of post-procedure complications with delayed healing in the foot. The biggest problem with offloading patients after surgery to reduce pressure on the surgical area is compliance (i.e. actually wearing the device).(1) Patients tend not to wear post-operative shoes that are bulky, heavy, cause asymmetry and compensatory gait problems.(2-5) In addition, most patients do their walking at home where they are least compliant with wearing post-operative shoes.(6)

   Current devices to offload painful sites of the feet, post-operative feet, or foot ulcerations include walking casts, orthotics, crutches, roll-abouts, total contact casts, surgical shoes, and/or a variety of Darco brand (Darco Intl) surgical shoes. Heavily padded insoles can also be used, but do not completely reduce pressure on the surgical area. Most of the current shoe wear has a flat insole, which if worn for an extended period of time, can lead to additional foot problems like acute plantar fasciitis.

   We propose PopSole™: a novel, anatomic, customizable, offloading insole device for the foot at a low cost. PopSole™ will provide the necessary personalized pressure relief permitting effective and efficient recovery for patients from varying foot injuries including: plantar fasciitis, deep callus formation, plantar warts, foreign bodies, diabetic ulcers, fat pad atrophy, in-office procedures and foot surgery. PopSole™ is easy to use, anatomically designed for the foot, and fits into common shoe wear, allowing users to incorporate the device into their daily lives. It is waterproof, so patients can use it in the shower. Improved use of an offloading device by patients will hasten the healing of localized foot issues and return people to the workforce and their daily lives in a timelier fashion. More significantly,

Popsole™ may reduce the number of diabetic ulcerations, hospitalizations, medical visits, and amputations.

Specifically, the device allows the provider to pop bubbles in the device (like popping paper), thereby offloading the surgical area or area of pain. This customizable approach to offloading may increase compliance as it can easily fit in a normal walking shoe and is personalized for each patient. It can also be attached to a slide for use in the shower. Currently no post-operative devices for offloading the foot can be used in the shower.

We propose a proof of concept clinical trial to assess the validity of a novel foot offloading device (PopSole™) that allows for customized pocketing out of areas of pain, along with customized arch support and metatarsal height to optimize offloading.

An important part of recovery from foot injury (including fat injections, treatment of diabetic ulcers, wart removal, painful calluses, healing fractures) is the minimization of pressure to optimize healing. This offloading is challenging because current modalities limit patient function, work, and safety due to their bulk, weight, and attractiveness.(7) Aggressive modifications to shoe soles create asymmetry between the feet that can lead to gait instability, falls, and pelvic shifts.(8-15) We have another clinical trial to assess comparison of this device to our current standard of care method utilizing cutting metatarsal pads and adhering them to current insoles to reduce pressure on grafted areas, but this does not adequately reduce pressure on the fat grafted areas.

Our device can be used in conjunction with post-operative boots that have flat bottoms to augment them for more comfort and potentially enable earlier transition to regular shoe gear. It may be able to eliminate more bulky devices completely as PopSole™ can fit into a regular sneaker or dress shoe.

With our novel device PopSole™, we aim to expedite the recovery process, reduce pain, and reduce compensatory gait issues that could lead to falls. Patient balance and stability is a big concern with the presently available offloading modalities. Falls and injuries have been experienced by patients, especially elderly, neuropathic diabetic patients and physically challenged individuals. In addition, our device can be easily placed in a slide-on shoe for wear around the house, or in the shower.

Our primary aim of this validation project is to allow patients with foot pain to trial the device for 4 weeks to assess improvements in pain, assess fit and feel, durability, and compliance. This project will allow for modifications of the device to be made prior to future randomized studies to assess pressure and gait assessment, shear forces, and use in the diabetic population.

Study Design

1. **Total number of subjects to be enrolled at this site (enter -1 for chart reviews, banking, registries):**
   20

2. **Describe and explain the study design:**
   This is a prospective proof of concept study.

3. **Describe the primary and secondary study endpoints:**
   Primary Outcomes: Pain scores as assessed by validated outcomes measures, compliance over 4 weeks, durability of the device (do the bubbles hold up or require replacement).

   Secondary Outcomes: Satisfaction with using the device, difficulties with the use of the device.

4. **Provide a description of the following study timelines:**

   Duration of an individual subject's active participation:
   Cohort 1: 4 Weeks
   Cohort 2: 3 Months
   Duration anticipated to enroll all subjects:
   6 months
   Estimated date for the investigator to complete this study (complete primary analyses):
   6/30/2020

5. **List the inclusion criteria:**
   Patients meeting the following criteria will be eligible to participate in the study:
   1. Aged 18 years or older and able to provide informed consent
   2. Subjects with foot pain due to forefoot or heel fat pad atrophy or chronic plantar fasciitis as defined by heel pain for greater than 6 months and failed non-surgical therapy
   3. Willing and able to comply with follow up examinations

6. **List the exclusion criteria:**
   Patients with the following characteristics will be excluded from participating in the study:
   1. Concurrent injury to the lower extremity that would effect gait
   2. Open foot ulcerations, fractures, or diagnosis of osteomyelitis of the feet
   3. Surgical foot intervention in the last 6 months
   4. Diagnosis of pregnancy or the intent of the participant to become pregnant during participation in this study
   5. Neuropathy

6. Any issue that per the physician's determination would render the patient not appropriate to continue participation in the study (compliance, change in physical status, etc.)

7. **Will children or any gender, racial or ethnic subgroups be explicitly excluded from participation?**

● **Yes** ○ No

*** Identify the subgroups and provide a justification:**

As foot pain due to forefoot or heel fat pad atrophy or chronic plantar fasciitis generally is not common in children, we will be limiting our population to adults 18 years of age or older.

8. **Describe the power analysis used and cite your method of statistical analysis. If a power analysis is not possible, thoroughly justify the sample size required for the study, including appropriate literature citation (alternatively provide page reference in attached protocol):**

Pain and activity questionnaires will be performed at 3 time points during the trial. Repeated measures analysis of variance will be used to compare change over time in foot pain, and tissue thickness. A power analysis was performed based on preliminary data collected in our previously conducted clinical trial (PRO#016030521). To meet a power of 0.8 and alpha of 95% with effect size of 1.35, at least 10 human subjects will be needed to evaluate activities of daily living at pre and 4 weeks post-op.

Research Activities

1. * **Provide a detailed description of all research activities (including screening and follow-up procedures) that will be performed for the purpose of this research study. This description of activities should be complete and of sufficient detail to permit an assessment of associated risks.**

All the following research activities are research procedures and are being completed for the purpose of this clinical trial. The following procedures will be completed prior to the PI's determination of subject's study eligibility. All screening procedures will take place at the Isaly's Medical building - UPMC Aesthetic Plastic Surgery Center and/or Lemieux Sports Medicine Complex. The information gathered during these visits will be from a combination of subject statement, medical record review, and in-person assessments and evaluations."

Optional digital recordings (i.e. photography) may be collected from any and all portions of the subject's research visits. These may include, but not be limited to, photos of functional assessment testing and clinical exams or photos of follow-up clinical course, etc. The study team will track/log those who agree to this vs. those who do not by including a section on the informed consent. This will also be kept in a spreadsheet to prevent us from taking photographs from subjects who have not authorized this activity. In addition, at follow-up visits, before any photographs are taken, participants will be asked again for verbal consent to the photographs.

COHORT 1:
Patients presenting with foot pain (pain in the forefoot, heel or plantar fascia) will be offered inclusion in the clinical trial. Information about the study will be provided at the time of candidate review. Once informed consent has been obtained then study procedures will be implemented for eligibility determination.
Should the subject complete the informed consent process and screening procedures, the duration of time to complete is estimated to take approximately 1-2 hours and will include the following research procedures:

1.) Obtain Informed Consent to be completed by the Principal Investigator (PI) or designated Co-Investigator. Once completed the subject will be allocated a subject ID number. This number will be the unique identifier for the subject during his/her trial participation.

2.) Performance of a limited physical exam, inclusive of participant's foot exam with a gait and shoe gear evaluation to be completed by the PI and /or Co-investigator. Any prior foot injuries or previous foot ulcerations/skin breakdown will be assessed. The foot exam will include a vascular, neurologic, dermatologic and orthopedic baseline assessment. As part of the exam (for example, related to diagnosing plantar fasciitis), an ultrasound may be performed in the clinics per the investigators' discretion.

3.) Medical and surgical history collection: Past medical and surgical history will be

collected by referral report or subject report.
Should the physician require additional information for review to confirm study eligibility, the subject may be asked to obtain and provide medical records to assist with the PI's review.

4.) Collection of subject's vital signs (Temp, HR, Resp., BP), medication profile, allergies, height, weight, and BMI calculation.

5.) Collection of demographic information to include subject's date of birth, gender, race, ethnicity, education, and smoking history.

ELIGIBILITY DETERMINATION: The Principal Investigator and/or in consultation with the co-investigators will determine subject eligibility to participate in the study based on the inclusion/ exclusion criteria.

All subjects will receive the PopSole™ offloading device at the screening/baseline visit, be asked to wear it for 4 weeks, and will be asked to return for an in-person evaluation at V1 (Week 2) and a completion study visit at V2 (Week 4). There will also be a phone call 48 hours after the screening visit to ensure that the patient has no issues or concerns with wearing the device.

Subjects will complete the following screening research procedures:
1.) Baseline reported outcome measures (PROMs) questionnaires and surveys that will take approximately 25 minutes to complete:
- Foot and Ankle Ability Measure (FAAM) questionnaire to assess subject ADL and function ability
- Manchester Foot and Ankle Disability Index to assess subject foot pain/discomfort
- Pittsburgh Foot Survey to assess subject pain, activity, life satisfaction/quality of life
- Mayo Clinical Scoring System questionnaire (MAYO) to assess subject pain, activity, and function (Investigator Rated)
- American Orthopaedic Foot and Ankle Society questionnaire (AOFAS) to assess subject pain and function (Investigator Rated)

2.) 2D Photographs of both feet will be performed for a visual baseline assessment of skin.

3.) Collection of subject's vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, BMI calculation and adverse event collection and reporting.

4.) Diary cards with instruction to start entry on the diary card 24 hours after the screening visit to continue through Visit 2 (Month 1) and be placed to study chart. The subject will be instructed to document self-assessment of the following events pertaining to the feet: Pain, Bruising, Redness of the skin, Itching, Swelling, Bleeding, Other (any concerns/issues not listed). The subject will be instructed to identify on the diary card the location, date, and day of each documented event. Unresolved events at Visit 2 will be carried over for documentation to the adverse event log.

5.) Offload Device Distribution to remain in use at all times during ambulation. Devices will be provided for both feet to maintain symmetry and gait stability between the two feet. One pair of devices will be given for use in shoe gear, and one pair will be given for use in a slide in the shower. A device instruction sheet will also be provided to the participants for reference.

48 Hour (+/- 1 Day) Phone Call
The study coordinator will call the subject 48 hours after the screening visit and eligibility determination. This phone call is to assess if there are any questions or concerns with the fit and feel of the PopSole device. If there are any issues that the subject may be experiencing the study coordinator will have an investigator or co-investigator reach out to the subject. The coordinator will be working off of a phone script, to ensure that all aspects of wearing the device have been addressed.

Follow up Visits:
Visit 1 (Week 2) with (+/- 7days) study window:
This visit will take approximately 1 hour and will take place at the Isaly's Medical Building- UPMC Aesthetic Surgery Center and/or UPMC Lemieux Sports Medicine Complex with the physician investigator and research team.
a.) Collection of vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, and BMI calculation.
b.) Limited physical exam with a foot exam completed by the PI and /or the Co-investigator
c.) Adverse Event Reporting - collecting any problems or symptoms or significant events that have occurred since the screening/baseline visit, including any unscheduled hospital or primary care provider visits. Review Medical Records for changes in medical/surgical history.
d.) Collection and distribution of diary cards
e.) 2D Photographs of both feet for a visual baseline assessment of the skin and soft tissue thickness.
f.) Foot Assessment Questionnaires: (FAAM, Mayo Clinical Scoring System, AOFAS Score, Manchester, and Pittsburgh Foot Survey) pertaining to foot pain and activity assessments.
g.) Device survey – questions about the fit and feel of the device

Visit 2 (Month 1) with (+/-7 days) study window:
This visit will take approximately 1 hour and will take place at the Isaly's Medical Building- UPMC Aesthetic Surgery Center and/or UPMC Lemieux Sports Medicine Complex with the physician investigator and research team.
a.) Collection of vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, and BMI calculation.
b.) Limited physical exam with a foot exam completed by the PI and /or the Co-investigator
c.) Adverse Event Reporting - collecting any problems or symptoms or significant events that have occurred since follow up visit 1, including any unscheduled hospital or primary care provider visits. Review Medical Records for changes in medical/surgical history.
c.) Collection of diary cards
d.) 2D Photographs of both feet for a visual assessment of your skin and soft tissue

thickness
e.) Foot Assessment Questionnaires: (FAAM, Mayo Clinical Scoring System, AOFAS Score, Manchester, and Pittsburgh Foot Survey) pertaining to foot pain and activity assessments.
f.) Collection of diary cards
g.) Device survey – questions about the fit and feel of the device
h.) PopSole™ Device removal

COHORT 2:
Patients presenting with foot pain (pain in the forefoot, heel or plantar fascia) will be offered inclusion in the clinical trial. Information about the study will be provided at the time of candidate review. Once informed consent has been obtained then study procedures will be implemented for eligibility determination.
Should the subject complete the informed consent process and screening procedures, the duration of time to complete is estimated to take approximately 1-2 hours and will include the following research procedures:

1.) Obtain Informed Consent to be completed by the Principal Investigator (PI) or designated Co-Investigator. Once completed the subject will be allocated a subject ID number. This number will be the unique identifier for the subject during his/her trial participation.

2.) Performance of a limited physical exam, inclusive of participant's foot exam with a gait and shoe gear evaluation to be completed by the PI and /or Co-investigator. Any prior foot injuries or previous foot ulcerations/skin breakdown will be assessed. The foot exam will include a vascular, neurologic, dermatologic and orthopedic baseline assessment. As part of the exam (for example, related to diagnosing plantar fasciitis), an ultrasound may be performed in the clinics per the investigators' discretion.

3.) Medical and surgical history collection: Past medical and surgical history will be collected by referral report or subject report.
Should the physician require additional information for review to confirm study eligibility, the subject may be asked to obtain and provide medical records to assist with the PI's review.

4.) Collection of subject's vital signs (Temp, HR, Resp., BP), medication profile, allergies, height, weight, and BMI calculation.

5.) Collection of demographic information to include subject's date of birth, gender, race, ethnicity, education, and smoking history.

ELIGIBILITY DETERMINATION: The Principal Investigator and/or in consultation with the co-investigators will determine subject eligibility to participate in the study based on the inclusion/ exclusion criteria.

All subjects will receive the PopSole™ offloading device at the screening/baseline visit, be asked to wear it for 4 weeks, and will be asked to return for an in-person

evaluation at V1 (Week 2), V2 (Week 4), V3 (Week 8) and a completion study visit at V4 (Week 12). There will also be a phone call 48 hours after the screening visit, At week 6 and at Week 10 to ensure that the patient has no issues or concerns with wearing the device.

Subjects will complete the following screening research procedures:
1.) Baseline reported outcome measures (PROMs) questionnaires and surveys that will take approximately 25 minutes to complete:
- Foot and Ankle Ability Measure (FAAM) questionnaire to assess subject ADL and function ability
- Manchester Foot and Ankle Disability Index to assess subject foot pain/discomfort
- Pittsburgh Foot Survey to assess subject pain, activity, life satisfaction/quality of life
- Mayo Clinical Scoring System questionnaire (MAYO) to assess subject pain, activity, and function (Investigator Rated)
- American Orthopaedic Foot and Ankle Society questionnaire (AOFAS) to assess subject pain and function (Investigator Rated)

2.) 2D Photographs of both feet will be performed for a visual baseline assessment of skin.

3.) Collection of subject's vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, BMI calculation and adverse event collection and reporting.

4.) Diary cards with instruction to start entry on the diary card 24 hours after the screening visit to continue through Visit 2 (Month 1) and be placed to study chart. The subject will be instructed to document self-assessment of the following events pertaining to the feet: Pain, Bruising, Redness of the skin, Itching, Swelling, Bleeding, Other (any concerns/issues not listed). The subject will be instructed to identify on the diary card the location, date, and day of each documented event. Unresolved events at Visit 2 will be carried over for documentation to the adverse event log.

5.) Offload Device Distribution to remain in use at all times during ambulation. Devices will be provided for both feet to maintain symmetry and gait stability between the two feet. One pair of devices will be given for use in shoe gear, and one pair will be given for use in a slide in the shower. A device instruction sheet will also be provided to the participants for reference.

48 Hour (+/- 1 Day) Phone Call study window:
The study coordinator will call the subject 48 hours after the screening visit and eligibility determination. This phone call is to assess if there are any questions or concerns with the fit and feel of the PopSole device. If there are any issues that the subject may be experiencing the study coordinator will have an investigator or co-investigator reach out to the subject. The coordinator will be working off of a phone script, to ensure that all aspects of wearing the device have been addressed.

Follow up Visits:
Visit 1 (Week 2) with (+/- 7 days) study window:

This visit will take approximately 1 hour and will take place at the Isaly's Medical Building- UPMC Aesthetic Surgery Center and/or UPMC Lemieux Sports Medicine Complex with the physician investigator and research team.
a.) Collection of vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, and BMI calculation.
b.) Limited physical exam with a foot exam completed by the PI and /or the Co-investigator
c.) Adverse Event Reporting - collecting any problems or symptoms or significant events that have occurred since the screening/baseline visit, including any unscheduled hospital or primary care provider visits. Review Medical Records for changes in medical/surgical history.
d.) Collection and distribution of diary cards
e.) 2D Photographs of both feet for a visual baseline assessment of the skin and soft tissue thickness.
f.) Foot Assessment Questionnaires: (FAAM, Mayo Clinical Scoring System, AOFAS Score, Manchester, and Pittsburgh Foot Survey) pertaining to foot pain and activity assessments.
g.) Device survey – questions about the fit and feel of the device

Visit 2 (Month 1) with (+/-14 days) study window:
This visit will take approximately 1 hour and will take place at the Isaly's Medical Building- UPMC Aesthetic Surgery Center and/or UPMC Lemieux Sports Medicine Complex with the physician investigator and research team.
a.) Collection of vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, and BMI calculation.
b.) Limited physical exam with a foot exam completed by the PI and /or the Co-investigator
c.) Adverse Event Reporting - collecting any problems or symptoms or significant events that have occurred since follow up visit 1, including any unscheduled hospital or primary care provider visits. Review Medical Records for changes in medical/surgical history.
c.) Collection of diary cards
d.) 2D Photographs of both feet for a visual assessment of your skin and soft tissue thickness
e.) Foot Assessment Questionnaires: (FAAM, Mayo Clinical Scoring System, AOFAS Score, Manchester, and Pittsburgh Foot Survey) pertaining to foot pain and activity assessments.
f.) Collection and distribution of diary cards
g.) Device survey – questions about the fit and feel of the device

Week 6 Phone Call (+/-14 days) study window:
The study coordinator will call the subject during week 6. This phone call is to assess if there are any questions or concerns with the fit and feel of the PopSole device. If there are any issues that the subject may be experiencing the study coordinator will have an investigator or co-investigator reach out to the subject. The coordinator will be working off of a phone script, to ensure that all aspects of wearing the device have been addressed.

Visit 3 (Month 2) with (+/-14 days) study window:
This visit will take approximately 1 hour and will take place at the Isaly's Medical Building- UPMC Aesthetic Surgery Center and/or UPMC Lemieux Sports Medicine Complex with the physician investigator and research team.
a.) Collection of vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, and BMI calculation.
b.) Limited physical exam with a foot exam completed by the PI and /or the Co-investigator
c.) Adverse Event Reporting - collecting any problems or symptoms or significant events that have occurred since follow up visit 1, including any unscheduled hospital or primary care provider visits. Review Medical Records for changes in medical/surgical history.
c.) Collection of diary cards
d.) 2D Photographs of both feet for a visual assessment of your skin and soft tissue thickness
e.) Foot Assessment Questionnaires: (FAAM, Mayo Clinical Scoring System, AOFAS Score, Manchester, and Pittsburgh Foot Survey) pertaining to foot pain and activity assessments.
f.) Collection of diary cards
g.) Device survey – questions about the fit and feel of the device

Week 10 Phone Call (+/-14 days) study window
The study coordinator will call the subject during week 6. This phone call is to assess if there are any questions or concerns with the fit and feel of the PopSole device. If there are any issues that the subject may be experiencing the study coordinator will have an investigator or co-investigator reach out to the subject. The coordinator will be working off of a phone script, to ensure that all aspects of wearing the device have been addressed.

Visit 4 (Month 3) with (+/-14 days) study window:
This visit will take approximately 1 hour and will take place at the Isaly's Medical Building- UPMC Aesthetic Surgery Center and/or UPMC Lemieux Sports Medicine Complex with the physician investigator and research team.
a.) Collection of vital signs (Temp, HR, Resp., BP), medication profile, allergies, weight, and BMI calculation.
b.) Limited physical exam with a foot exam completed by the PI and /or the Co-investigator
c.) Adverse Event Reporting - collecting any problems or symptoms or significant events that have occurred since follow up visit 1, including any unscheduled hospital or primary care provider visits. Review Medical Records for changes in medical/surgical history.
c.) Collection of diary cards
d.) 2D Photographs of both feet for a visual assessment of your skin and soft tissue thickness
e.) Foot Assessment Questionnaires: (FAAM, Mayo Clinical Scoring System, AOFAS Score, Manchester, and Pittsburgh Foot Survey) pertaining to foot pain and activity assessments.
f.) Collection of diary cards

g.) Device survey – questions about the fit and feel of the device

h.) PopSole™ Device removal

2. **Upload a copy of all materials used to collect data about subjects: (Attach all surveys, interview/focus group scripts, and data collection forms except for case report forms, SCID or KSADS):**

	Document	Category	Date Modified	Document History
View	PopSole 6 and 10 week Phone Script Cohort 2_11.06.2020.docx(0.01)	Data Collection	11/6/2020	History
View	Pittsburgh Foot Survey(2)	Data Collection	9/28/2020	History
View	MAYO(2)	Data Collection	9/28/2020	History
View	PopSole2 48hr phone follow up.doc(1)	Data Collection	7/21/2020	History
View	AOFAS Questionnaire.docx(1)	Data Collection	4/8/2020	History
View	FAAM Questionnaire(1)	Data Collection	2/19/2020	History
View	Foot Survey(1)	Data Collection	2/19/2020	History
View	Manchester Pain Questionnaire(1)	Data Collection	2/19/2020	History
View	Mayo Clinical Scoring System(1)	Data Collection	2/19/2020	History
View	PopSole TM Device Survey(1)	Data Collection	2/19/2020	History

3. * **Will blood samples be obtained for research purposes?**

○ Yes ● **No**

Consent Process

Enter N/A in response to the following questions if a Waiver of Consent is requested for all research activities or if no subjects are being enrolled.

1. * **Indicate where the consent process will take place and at what point consent will be obtained:**
Clinical candidates with relevant foot pain who are interested in hearing more about the study will be referred from Dr. Gusenoff's clinical practice. The coordinators will be obtaining verbal consent from referred potential subjects through a telephone script, before asking the initial screening eligibility questions.

   Once participants are found to be eligible and express their continued desire to participate in the study, an in person visit will be scheduled at one of the two clinic locations. Consent will be obtained by the physician investigator or his clinical designee's, which may include Beth Gusenoff, DMP, Autumn Groscost, PA-C, Rebecca Parsons, PA-C or Danielle Hildebrand DPT with assistance from the study coordinator, prior to any research procedures being conducted during the screening/baseline visit. Dr. Gusenoff's clinical designees have significant experience with diagnosis and treatment of foot and heel pain (see section 5 below).

2. * **Describe the steps that will be taken to minimize coercion and undue influence, including assurance that there is sufficient time for subjects to make an informed decision:**
Once a patient has been identified/confirmed by the principal investigator as an appropriate candidate, the patient will be scheduled for the consent/screening visit. This screening visit will take place at UPMC Aesthetic Plastic Surgery Center located at 3380 Boulevard of the Allies, Suite 158, Pittsburgh Pa. 15213 or the UPMC Lemieux Sports Medicine Complex in Cranberry Pa.16066 and will include review of the informed consent.

   The physician investigator or co-investigator, with assistance from the research coordinator, will discuss with the subject the nature of the research study, design schema, the risks and benefits, cost and payments and rights as a research subject participant. The potential subject will review the informed consent document allowing ample time to review all information and ask questions. Should the potential subject wish to take the consent and review it outside of the office setting or discuss with other family or medical personnel, he/she will be able to leave the office and return at a later date. The physician investigator will provide the potential subject a private area to conduct this informed consent document review prior to signing the informed consent. After this detailed discussion of the study and conclusion of any and all questions, the study investigator, will obtain informed consent.

   The research coordinator will document the consenting process into the research chart and prior to beginning any research activities provide a copy of the fully executed, informed consent document to the subject for his or her records. No research related procedures will be performed before the informed consent has

been obtained.

It will be explained that their choice, to participate or not participate, will not affect their current relationship with the referring plastic surgeon, orthopaedic surgeon, podiatrist or UPMC.

3. **For studies that involve multiple visits, describe the process to ensure ongoing consent:**
Ongoing consent assessment of voluntary consent desired by the subject will be conducted verbally at each visit, reminding subjects that their continued participation is voluntary and may be terminated at any point. The subject's continued consent will be documented contemporaneously. This process will be documented in the coordinator's visit note.

4. *** Steps to be taken to ensure the subjects' understanding:**
The physician investigator or co-investigator will discuss with the subject the nature of the research study, design schema, the risks and benefits, cost and payments and their rights as a research subject. Technical terms will be described using lay terminology and subjects will be encouraged to ask questions, and all will be answered to their satisfaction.

The potential subject will review the informed consent document allowing ample time to review all information and ask questions. The study investigator will provide the potential subject a private area to conduct this study document review prior to signing the informed consent. After this detailed discussion of the study and conclusion of any questions, the physician investigator, will obtain informed consent. The research coordinator will document the consenting process and prior to beginning any research activities provide a copy of the fully executed informed consent document to the subject for his or her records.

5. *** Are you requesting an exception to the IRB policy related to the informed consent process:**
● **Yes** ○ No

*** Provide a justification and describe the qualifications of the individuals who will obtain consent:**
The consent may be reviewed with the participant by the MD/PI. In addition, the consent discussion may be performed by three co-investigators who are also clinical designees as well. Firstly, one designee is an experienced MD who is well versed with the PopSole device. Beth Gusenoff, DPM is listed as an innovator for the device. She is a board certified licensed podiatrist and she has been a collaborater/co-investigator on numerous research studies. She has been in practice for over 20 years.

The consent discussion may also be conducted by an experienced licensed PA-C, our second clinical designee. Autumn Groscost, PA-C has been working in the Department of Plastic Surgery at UPMC since 2012. She has assisted physicians with multiple research studies and in the operating room. She has experience with multiple different disciplines within the Department of Plastic Surgery. She is a mentor in the department for students and does a great deal of patient education.

The consent discussion may also be conducted by an experienced licensed PA-C, our third clinical designee. Rebecca Parsons PA-C has been working in the Department of Plastic Surgery at UPMC since 2019. She has assisted physicians

with multiple research studies. She has experience with multiple different disciplines within the Department of Plastic Surgery.

The signature may also be obtained by an experienced licensed Physical Therapist, our third clinical designee. Danielle Hildebrand, DPT is a senior physical therapist at UPMC Lemieux Sports Complex. She has worked at multiple different rehab centers within the UPMC network over the last 10 years. She sees many patients with plantar fasciitis and has the clinical experience to participate in the consenting process.

The Center for Innovation in Restorative Medicine (CIRM) is responsible to the Department of Plastic Surgery to maintain all copy of records that demonstrate these qualification for investigators (CV, current licensure, research training).

Consent Forms

1. **Consent Forms:**

	Document	Category	Date Modified	Document History
View	PopSole CONSENT Cohort 2_11.06.2020 V1.0.docx(0.01)	Consent Form	11/6/2020	History
View	PopSole CONSENT_Cohort 1(3.03)	Consent Form	11/6/2020	History

Refer to the following templates and instructional documents:

- Guidance - Consent Wording
- Template - Consent Document - Short Form
- HRP-090 - SOP - Informed Consent Process for Research
- HRP-091 - SOP - Written Documentation of Consent

Medical Records

1. You are required to submit this study to the Research Informatics Office, Health Record Research Request (R3). Per UPMC Policy HS-RS0005, all research projects that access or involve UPMC electronic protected health information (e-PHI) must be submitted to R3, with the exception of clinical trials that are contracted through the UPMC Office of Sponsored Programs and Research Support (OSPARS).

   Complete the R3 intake form available at http://rio.pitt.edu/services. An R3 representative will conduct a review. You will be notified once your R3 review is complete or if anything further is needed.

*** Describe the protected health information that will be collected from the covered entity and/or the research derived information that will be placed into the medical records:**

Information to be collected from the medical record are clinical details pertaining to:

The participants' prior treatment history related to their foot pain, and any relevant medical conditions and comorbidities. Also, any medical information that directly impacts the safety determination for the subject to participate in this study.

Information derived from the research procedures, including physical exams/medical history conducted during research visits, may be placed in the participant's medical record per the investigator's discretion as it relates to the treatment of their foot pain.

2. *** Describe what protected health information will be obtained from a non-UPMC/Pitt covered entity for research purposes and how the HIPAA requirements will be met:**

   If a subject is coming from an entity outside of UPMC, he/she may bring copies of their medical records to the screening visit, or he/she may voluntarily send records in anticipation of the visit for the Investigators' screening/eligibility review. We will look at all records that are provided, as they are appropriate to the study.

   Research data will not be placed in a non-UPMC medical record.

Electronic Data Management

1. * **Will only anonymous data be collected** (select **NO** if identifiers will be recorded **at anytime during the conduct of the study)?**

○ Yes ● **No**

Select all identifiers to be collected during any phase of the research including screening:

Name:	☑	**Internet Protocol (IP) Address:**	☐
E-mail address:	☑	**Web Universal Resource Locators (URLs):**	☐
Social security #:	☐	**Social security # (for Vincent payment only):**	☑
Phone/Fax #:	☑	**Full face photo images or comparable images:**	☐
Account #:	☐	**Health plan beneficiary #:**	☐
Medical record #:	☐	**Device identifiers/serial numbers:**	☐
Certificate/license #:	☐	**Vehicle identifiers/serial #/license plate #:**	☐
		Biometric identifiers, finger and voice prints:	☐

* **a: Will you be collecting any of the following location data: geographic subdivisions smaller than a State such as street address, city, county, precinct, zip, geocodes, etc.?**	● **Yes** ○ **No**
* **b: Will you be collecting any date information such as birth date, death, admission, discharge, date of surgery/service?**	● **Yes** ○ **No**
c: List any other unique identifying numbers, characteristics or codes related to an individual that are to be collected:	None
d: Will you be collecting any data subject to the General Data Protection Regulation (GDPR)?	○ **Yes** ● **No**
* **e: Provide a justification for recording Social Security numbers including why it's required, where it's stored, how it's protected and who will have access:**	For Vincent Use only. It will be stored in a locked cabinet with the original consent form. Only the study team will have access.

* **For ALL identifiable data collected, will you be coding the data by removing the identifiers and assigning a unique study ID/code to protect the identity of the participant?**	○ **Yes** ● **No**
* **Will the data be** HIPAA de-identified?	● **Yes** ○ **No**
* **Briefly describe your plan to store coded data separately from the identifiable data:**	Identifiable data will be maintained in hard copy only (data will not be stored electronically) with the original informed consent form in a separate area than the shadow chart. All identifiable information fields in the shadow chart will be redacted to remove any ability to be linked without subject identifier.

2. * **During this study, will restricted data as defined by the University's Data Risk Classification matrix (** https://www.technology.pitt.edu/security/data-risk-classification-and-compliance **) be processed, stored, or transmitted?**

○ Yes ○ No

3. * **During this study, will sensitive data (**https://www.hrpo.pitt.edu/electronic-data-security**) be collected where disclosure of identifying information could have adverse consequences for subjects or damage their financial standing, employability, insurability, educational advancement, reputation or place them at risk for criminal or civil liability?**

○ Yes ● **No**

4. * **Select all locations where data will be stored or accessed (including e.g.,** personal / employer laptop or desktop**):**

	Storage Device	Description	Identifiable Data	Sensitive Data	De-Identified/Anonymous Data
View	Server: Pitt Department Managed Server	Relevant clinical data will be stored per UPMC protocols in a HIPAA-compliant manner. No other electronic or physical records will be maintained outside of UPMC secured firewalls and within approved facilities.	no	yes	yes
View	UPMC owned desktop, laptop or other device	Relevant clinical data will be stored per UPMC protocols in a HIPAA compliant manner. No other electronic or physical records will be maintained outside of UPMC secured firewalls and within approved facilities.	no	no	yes

5. * **Select all technologies being used to collect data or interact with subjects:**

Electronic audio, photographic, or video recording or conferencing

6. * **Video, Audio, Images – identify all uses of video, audio, photography, etc. to be used to collect data during any phase of the research:**

	name	Identifiable
View	Digital photography	no

Data Safety and Monitoring

1. * **Describe your plan to periodically evaluate the data collected regarding both harms and benefits to determine whether subjects remain safe. The plan might include establishing a data monitoring committee and a plan for reporting data monitoring committee findings to the IRB and the sponsor:**
The Data Safety and Monitoring Plan for this research study will consist of a Local Data and Safety Monitoring Plan that will be implemented by the Principal Investigator to ensure that there are no changes in the risk/benefit ratio during the course of the study and that confidentiality of research data is maintained. This DSMB will consist of the PI, Co- Investigators and study personnel who will meet and discuss monthly the study (e.g., study goals and modifications of those goals; subject recruitment and retention; progress in data coding and analysis; documentation, identification of adverse events or research subject complaints; violations of confidentiality) and address any issues or concerns at that time. Minutes will be kept for these meetings and will be maintained in the study binder. Any instances of adverse events will be reported immediately to the University of Pittsburgh IRB in accordance with IRB Guidelines.

   The annual IRB renewal for this study will include a summary report of the Data and Safety Monitoring Plan findings from the study for the prior year. We will include the following information at the time of the IRB renewal: the frequency of the monitoring, the dates that the monthly meetings took place, a summary of the cumulative adverse events, external factors or relevant information that might have an impact on the safety or ethics of the study, and final conclusions regarding changes to the anticipated risk/benefit ratio to study participation and final recommendations related to the continuation, changing, or termination of the study.

2. * **Describe your plan for sharing data and/or specimens:**
Information obtained from this study may be shared with other investigators who are interested in the care of the foot. However, information will be de-identified, shared without any subject identifiers.

   The investigators may continue to use and disclose, for the purposes of this research, de-identified information related to participation in this research study indefinitely. It is University of Pittsburgh policy to maintain research records and data for at least 7 years following final reporting or publication of a project.

   No specimens will be collected.

3. **If any research data is collected, stored, or shared in a paper format, address what precautions will be used to maintain the confidentiality of the data:**
Participation in this research study does involve the potential risks of a breach of confidentiality of the medical record information and associated privacy of the participants. The study investigators will take steps to reduce these risks by: 1) removing direct participant identifiers (i.e., names, social security numbers, medical record numbers) from information stored in the study records; 2) securing, in a

separate location, and limiting access to information linking codes assigned to the study record information with direct participant identifiers; and 3) limiting access to information contained within the study records to study investigators and research team, only.

Paper-based records will be kept in a secure location and only be accessible to personnel involved in the study, computer-based files will only be made available to personnel involved in the study through the use of access privileges and passwords. Whenever feasible, identifiers will be removed from study-related information, and precautions are in place to ensure the data is secure by using passwords and folder level restricted access to shared drives.

De-identified photographs of the feet, will be housed as electronic files in a password protected computer on a UPMC server located within the locked offices of the Aesthetic Plastic Surgery Center located at 3380 Boulevard of the Allies, suite 180 Pittsburgh PA 15213. While the photographs will be labeled with an ID code, there is a rare risk of loss of confidentiality.

Digital recordings (i.e. photography) are being collected from any and all portions of the subject's research visits. These may include, but not be limited to, photos of functional assessment testing and clinical exams or photos of follow up clinical course, etc. and will be de-identified and stored indefinitely in a secure password protected, encrypted, location on the UPMC server. These digital photos may be used for medical education and training, publication, and media reports – and, in any mode of transmission, including and not limited to: print, e-mail, television, internet, etc.
The subjects are not required to give this permission and can refuse at any time after giving consent to these digital recordings being obtained and can still participate in this study without permitting these recordings/photographs.

Risk and Benefits

1. * **Enter all reasonably foreseeable risks, discomforts, hazards, or inconveniences to the subjects related to subjects' participation in the research:**

View

Research Activity	**Ultrasound, if deemed clinically necessary.**
Common Risks	**Irritation or rash from the gel used during the ultrasound.**
Infrequent Risks	**n/a**
Other Risks	**n/a**

View

Research Activity	**Collection and Storing of PHI**
Common Risks	***No Value Entered***
Infrequent Risks	***No Value Entered***
Other Risks	**Participation in this research study does involve the potential risks of a breach of confidentiality of the medical record information and associated privacy of the participants. The study investigators will take steps to reduce these risks by: 1) removing direct participant identifiers (i.e., names, social security numbers, medical record numbers) from information stored in the study records; 2) securing, in a separate location, and limiting access to information linking codes assigned to the study record information with direct participant identifiers; and 3) limiting access to information contained within the study records to study investigators and research team only.**

View

Research Activity	**Photographs**
Common Risks	**There may be feelings of embarrassment during the photographs.**
Infrequent Risks	**Loss of confidentiality**
Other Risks	***No Value Entered***

View

Research Activity	**Offloading Devices**
Common Risks	***No Value Entered***
Infrequent Risks	**Irritation of feet by the device. Difficultly of foot fitting in shoe with the device. The device may not offload the appropriate area and a new device may need to be provided, or modifications to the device may need to be made. Slippage of the device in foot gear. Feeling of asymmetry or one foot being higher than the other.**
Other Risks	***No Value Entered***

2. * **Describe the steps that will be taken to prevent or to minimize risks:**

Research Procedures:

Subject will be in a private room for all research procedures and during the consenting process steps will be taken to maintain to protect the potential subject's PHI. All Study materials will be assigned a study ID code. No personal information

will be identified on study materials. All information obtained for the purpose of this clinical trial will be de-identified and will be assigned a study ID code. All paper files will be in a locked file cabinet within the Department of Plastic Surgery offices. All computer based files will be password protected.

All research staff are trained in Human subject protection and have completed and /or maintain their required CITI modules. The research staff have completed education in Good Clinical Practice.
During this study should the subject expresses any concerns, issues or discomfort related to the research procedures, all exams will be stopped and the investigator through evaluation and discussion with the subject will determine if the intervention is to be terminated.

Experimental Interventions and Follow up Procedures :
The investigator MD surgeon and co-investigator podiatrist are highly trained with over 11 years experience in medical procedures involving foot disorders with fat pad atrophy. Their extensive experience in treating foot pad atrophy with foot fat-grafting and off-loading devices renders appropriate qualifications for performing this clinical trial. All research staff as appropriately qualified and delegated will be are trained in the study specific procedures.

If the participant has any issues with the fit or feel of the device, it will be modified or a new one will be provided. A device will be provided for both feet, so that there is a limitation in any asymmetry or gait instability between the two feet.

3. **Financial risks - will the subject or insurer be charged for any research required procedures?**
   ○ Yes ● **No**

4. **Describe the steps that will be taken to protect subjects' privacy:**
   Information obtained from this study may be shared with other investigators who are interested in the care of the foot. However, information will be de-identified, shared without any subject identifiers.

   The investigators may continue to use and disclose, for the purposes of this research, de-identified information related to participation in this research study indefinitely. It is University of Pittsburgh policy to maintain research records and data for at least 7 years following final reporting or publication of a project.

5. **What steps will be taken in the event that a clinically significant, unexpected disease or condition is identified during the conduct of the study:**
   Upon discovery the PI and/ or co-investigator will notify the subject of any event that could be of clinical significance needing further evaluation, or of a diagnosis of any unexpected disease or condition that occurred during the conduct of the study's research procedures. The study investigator will at the time of discovering the event contact the referring physician or primary physician for further evaluation of the event.

Should the event be of a critical nature needing immediate intervention, the study investigator or co-investigator will proceed with immediate clinical intervention and screening procedures will be concluded.

6. **Describe the potential benefit that individual subjects may experience from taking part in the research or indicate if there is no direct benefit. Do not include benefits to society or others:**

Subjects with the device may have an improvement in foot pain. Additionally, this improvement in foot pain may have a positive impact on quality of life, as assessed by foot pain questionnaires.

Although we cannot guarantee a positive outcome from the use of the offload device, there may be a direct benefit to the research subject from his/her participation in this research study. In addition, this research may provide a greater understanding of the effects of offloading devices in patients with foot disorders and potentially benefit patients present and in the future diagnosed with these conditions.

7. **Do you anticipate any circumstances under which subjects might be withdrawn from the research without their consent?**

● **Yes** ○ No

* **Describe the circumstances and any procedures for orderly termination:**

If the investigators feel that the subject cannot complete the study requirements safely (for example, experience severe side effects or development of an open ulceration), they may withdraw the subject from the study. At the time of withdrawal, the investigator will discuss with the subject the appropriate and requested follow up based on the specific event.

8. **Describe procedures that will be followed when subjects withdraw from the research, including partial withdrawal from procedures with continued data collection and data already collected:**

Any identifiable research or medical information recorded for, or resulting from, participation in this research study including collected data and digital recordings, prior to the date that the subject formally withdrew their consent will continue to be used and disclosed by the investigators for the purposes described above and processed specifically as outlined in the research design for this trial.

Conflict of Interest

1. * **Is this an** FDA Covered Clinical Study**?**

○ Yes ● **No**

*Answer **YES** if it is:*

- *A study of a drug or device in humans to be submitted in a marketing application or reclassification petition that the applicant or FDA relies on to establish that the product is effective (including studies that show equivalence to an effective product); or*
- *A study in which a single investigator makes a significant contribution to the demonstration of safety.*

*Do **NOT** include:*

- *phase I tolerance studies or pharmacokinetic studies;*
- *clinical pharmacology studies (unless they are critical to an efficacy determination);*
- *large open safety studies conducted at multiple sites;*
- *treatment protocols; or*
- *parallel track protocols.*

2. * **Does this study involve a Non-Significant Risk Device and you anticipate including the results as part of any type of submission to the FDA for approval of this device?**

○ Yes ● **No**

3. * **Is this study funded in part or whole by a PHS Agency?**

○ Yes ● **No**

4. * **Does any investigator involved in this study (select all that apply):**

☐ A. Have a financial interest (aggregated value of equity and remuneration during the past or next twelve months) in a publicly-traded entity that either sponsors this research or owns the technology being evaluated or developed that exceeds a 5% ownership interest or a current value of $10,000?

☐ B. Receive remuneration (during the past or next twelve months) from a non-publicly traded entity that either sponsors this research or owns the technology being evaluated or developed that exceeds $10,000?

☐ C. Have equity in a non-publicly traded entity that either sponsors this research or owns the technology being evaluated or developed?

- ☐ D. Have rights as either the author or inventor of intellectual property being evaluated or developed in this research and for which you are receiving royalties, milestone fees, or other proceeds that have or will exceed $10,000 in any 12-month period (include payments through the University of Pittsburgh, the Veterans Administration Pittsburgh Healthcare System, UPMC, and University of Pittsburgh Physicians)?
- ☐ E. Have an officer or management position with a company that either sponsors this research or owns the technology being evaluated or developed?
- ☐ F. Receive compensation of any amount when the value of the compensation would be affected by the outcome of this research, such as compensation that is explicitly greater for a favorable outcome than for an unfavorable outcome or compensation in the form of an equity interest in the entity that either sponsors this research or owns the technology being evaluated or developed?
- ☑ None of the above options apply and there are no other financial conflicts of interest in the conduct of this research.

5. **Provide the name of the investigator(s) and describe the nature of the Significant Financial Interest(s):**

Ancillary Reviews

1. **Ancillary reviews or notifications selected below are required based on previous answers to questions. If a selection is incorrect, return to the appropriate page and adjust the answers to questions on that page:**

- ☐ Conflict of Interest (**COI**)
- ☐ Clinical and Translational Research Center (**CTRC**)
- ☐ Data Security
- ☐ Honest Broker
- ☐ UPMC Investigational Drug Service
- ☐ Pitt Medical School Review
- ☐ Pitt+Me
- ☐ IND & IDE Support(**IIS**)
- ☐ Radioactive Drug Research Committee (**RDRC**)(study involves the evaluation or use of procedures that emit ionizing radiation)
- ☐ ORP Business **Manager** (required for industry sponsored studies)
- ☐ Religious Directives
- ☑ Scientific Review
- ☑ Health Record Research Request (**R3**) (required if using UPMC clinical data and authorization for other UPMC data sources for research)
- ☑ UPMC Office of Sponsored Programs and Research **Support** (using UPMC facilities and/or UPMC patients during the conduct of the study)

2. **Additional ancillary reviews the PI may choose to include as needed for the research:**

- ☐ Human Stem Cell Oversight (**hSCRO**)
- ☐ Institutional Biosafety Committee (**IBC**)(study involves deliberate transfer of recombinant or synthetic nucleic acid molecules)

Good Clinical Practice (GCP) Training

1. * **Regardless of funding source, is this study a clinical trial** (as defined by the NIH)**?**
   ● **Yes** ○ No

ClinicalTrials.gov Information

Visit the University of Pittsburgh Office for ClinicalTrials.gov website or contact ctgov@pitt.edu for further information.

2. * **Was this study registered, or will it be registered, on ClinicalTrials.gov?**
   ● **Yes** ○ No

3. * **Is the University of Pittsburgh or UPMC the Sponsor Organization for this study record?**
   ● **Yes** ○ No

   * **Who will be the Responsible Party for this study record?**

   Principal Investigator of this IRB application

Supporting Documents

1. **Attach any additional supporting documents not previously uploaded. Name the documents as you want them to appear in the approval letter:**

	Document	Category	Date Modified	Document History
View	MOD 3 SUMMARY (0.01)	Other	11/6/2020	History
View	PopSole Schema Cohort 2_10.30.2020 Version 1.0.docx(0.01)	Other	11/6/2020	History
View	PopSole Schema Cohort 1(2.01)	Other	11/6/2020	History
View	PopSole2 Participant Device Instructions(1)	Other	7/21/2020	History
View	References IRB PopSole 1.15.19.docx(0.01)	Other	1/15/2020	History

View: Pitt Create

Add Storage Information

1. * **Select a Storage Type:**
   Server: Pitt Department Managed Server

2. **Description:**
   Relevant clinical data will be stored per UPMC protocols in a HIPAA-compliant manner. No other electronic or physical records will be maintained outside of UPMC secured firewalls and within approved facilities.

3. * **Will identifiable data be stored in this location?**
   ○ Yes ● **No**

4. * **Will sensitive data be stored in this location?**
   ● **Yes** ○ No

5. **Will de-Identified or anonymous data be stored in this location?**
   ● **Yes** ○ No

6. **Provide additional information as needed:**

Add Storage Information

1. * **Select a Storage Type:**
   UPMC owned desktop, laptop or other device

2. **Description:**
   Relevant clinical data will be stored per UPMC protocols in a HIPAA compliant manner. No other electronic or physical records will be maintained outside of UPMC secured firewalls and within approved facilities.

3. * **Will identifiable data be stored in this location?**
   ○ Yes ● **No**

4. * **Will sensitive data be stored in this location?**
   ○ Yes ● **No**

5. **Will de-Identified or anonymous data be stored in this location?**
   ● **Yes** ○ No

6. * **Is anti-virus software installed and up to date on all devices and are the operating systems kept up-to-date on all devices?**
   ● **Yes** ○ No

7. **Provide additional information as needed:**

Risk

1. * **Research Activity:**
   Ultrasound, if deemed clinically necessary.

2. **Common Risks:**
   Irritation or rash from the gel used during the ultrasound.

3. **Infrequent Risks:**
   n/a

4. **Other Risks:**
   n/a

Risk

1. * **Research Activity:**
   Collection and Storing of PHI

2. **Common Risks:**

3. **Infrequent Risks:**

4. **Other Risks:**
   Participation in this research study does involve the potential risks of a breach of confidentiality of the medical record information and associated privacy of the participants. The study investigators will take steps to reduce these risks by: 1) removing direct participant identifiers (i.e., names, social security numbers, medical record numbers) from information stored in the study records; 2) securing, in a separate location, and limiting access to information linking codes assigned to the study record information with direct participant identifiers; and 3) limiting access to information contained within the study records to study investigators and research team only.

Risk

1. * **Research Activity:**
   Photographs

2. **Common Risks:**
   There may be feelings of embarrassment during the photographs.

3. **Infrequent Risks:**
   Loss of confidentiality

4. **Other Risks:**

Risk

1. * **Research Activity:**
   Offloading Devices

2. **Common Risks:**

3. **Infrequent Risks:**
   Irritation of feet by the device. Difficultly of foot fitting in shoe with the device. The device may not offload the appropriate area and a new device may need to be provided, or modifications to the device may need to be made. Slippage of the device in foot gear. Feeling of asymmetry or one foot being higher than the other.

4. **Other Risks:**