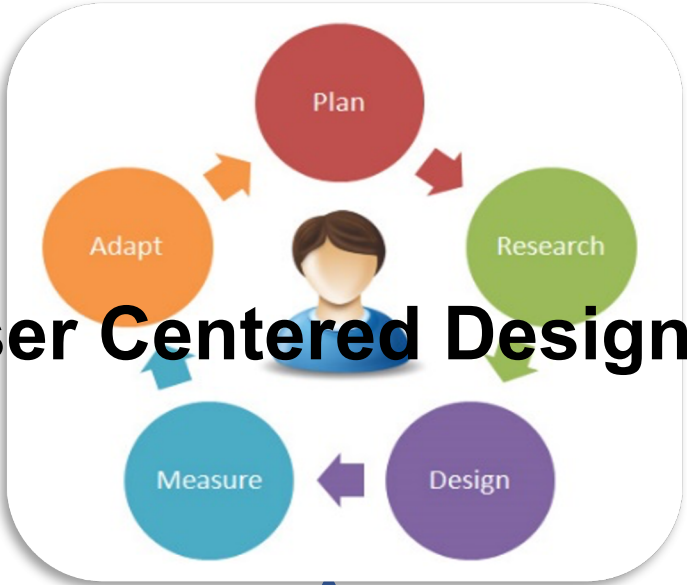


Using eHealth to Deliver Self- Acupressure to Cancer Survivors for Treating Fatigue

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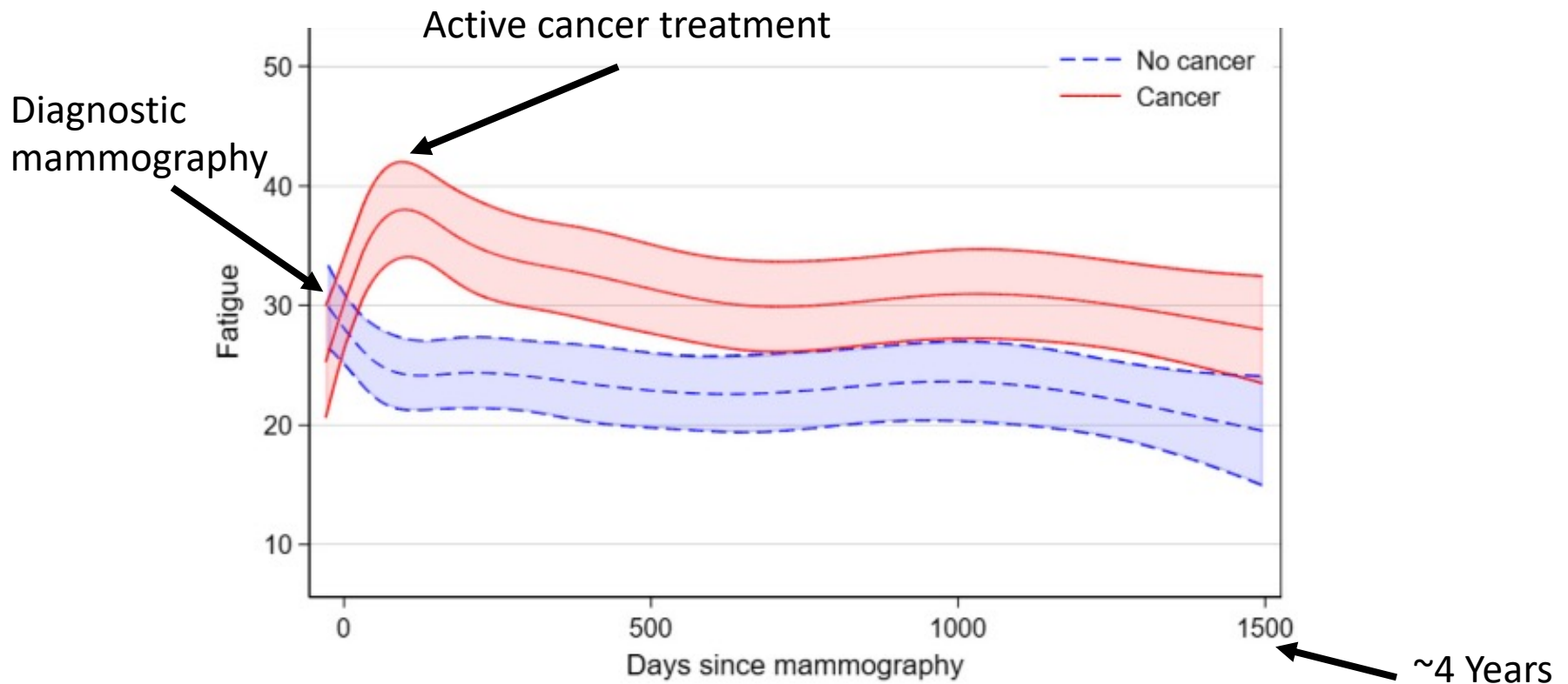




Is fatigue important?



At least 40% of people diagnosed with cancer experience clinically significant rates of fatigue.



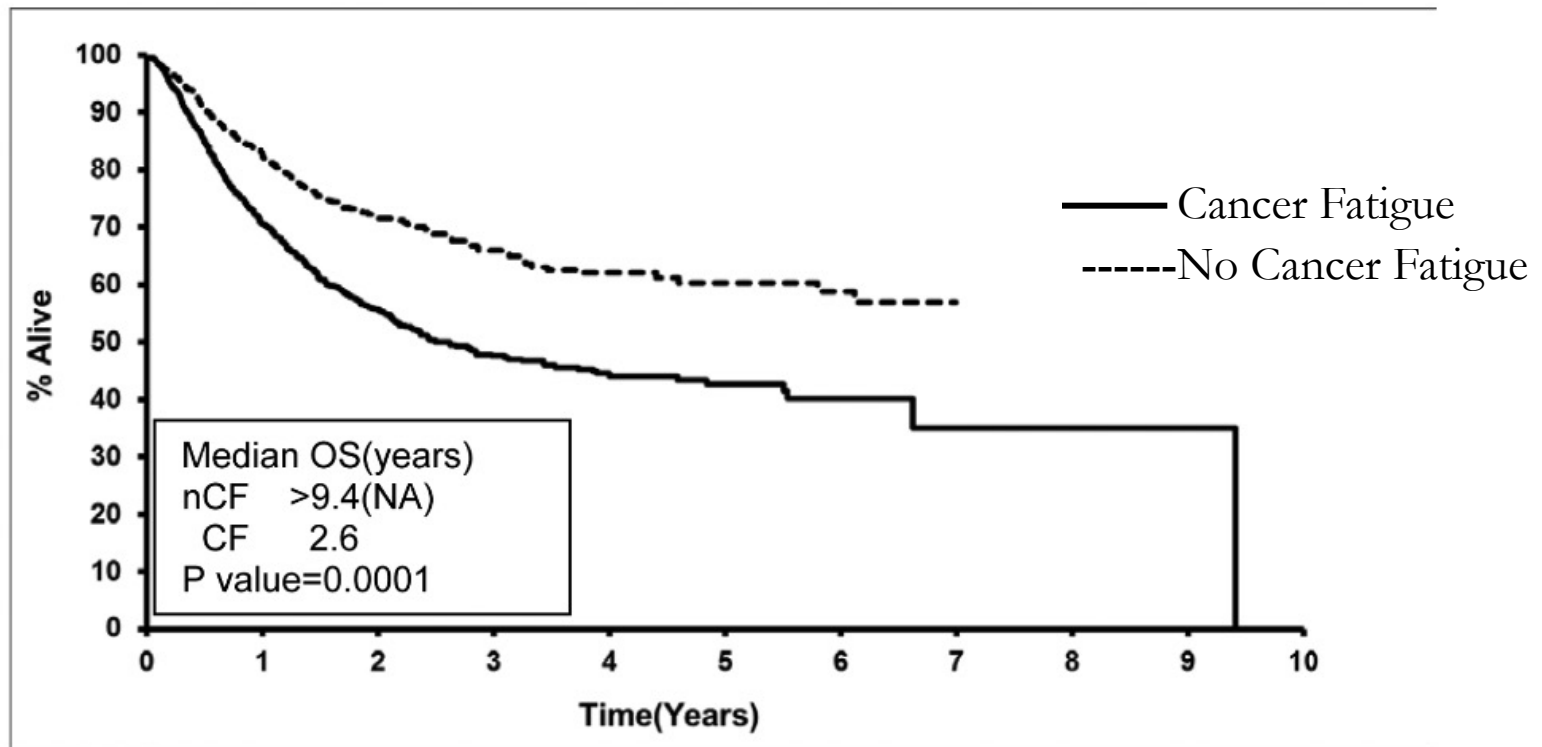
Beiring K. S. et al. Journal of Patient-Reported Outcomes volume 4, Article number: 37 (2020).

Fatigue has a negative impact on all areas of function.

“Patients consider fatigue to be more distressing and of greater impact on the activities of daily living than any other conditions associated with cancer”

Fatigue is an independent predictor of overall survival.

**Clinically Deficient Fatigue (CF) vs
not Clinically Deficient Fatigue (nCF):
43 trials (3,915 patients)**



Current Treatments for Cancer Fatigue are Sub-Optimal.



Fatigue!



Few Providers

Stigma

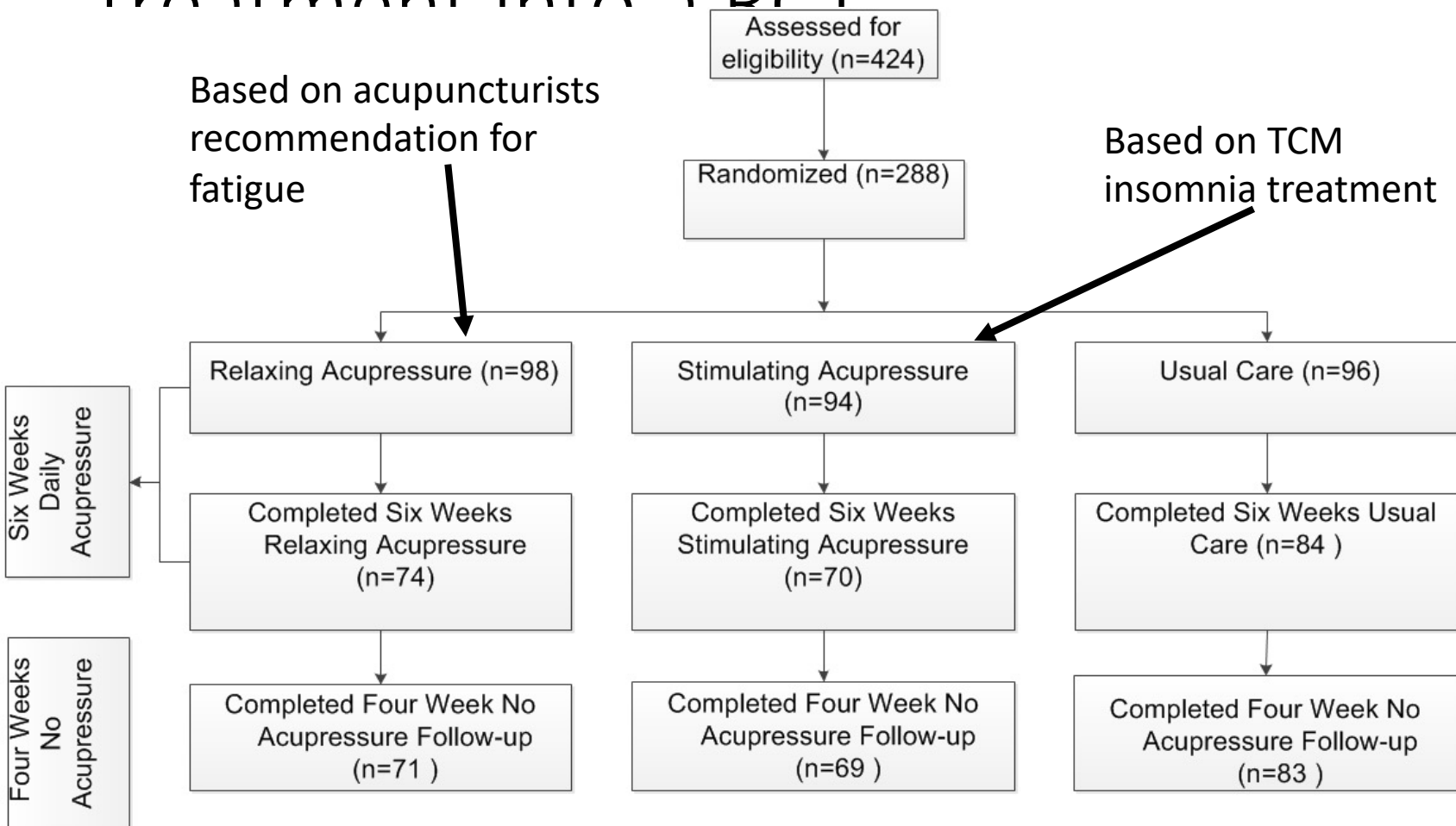
Lack of Insurance



Self-acupressure can be a flexible safe self-care intervention.

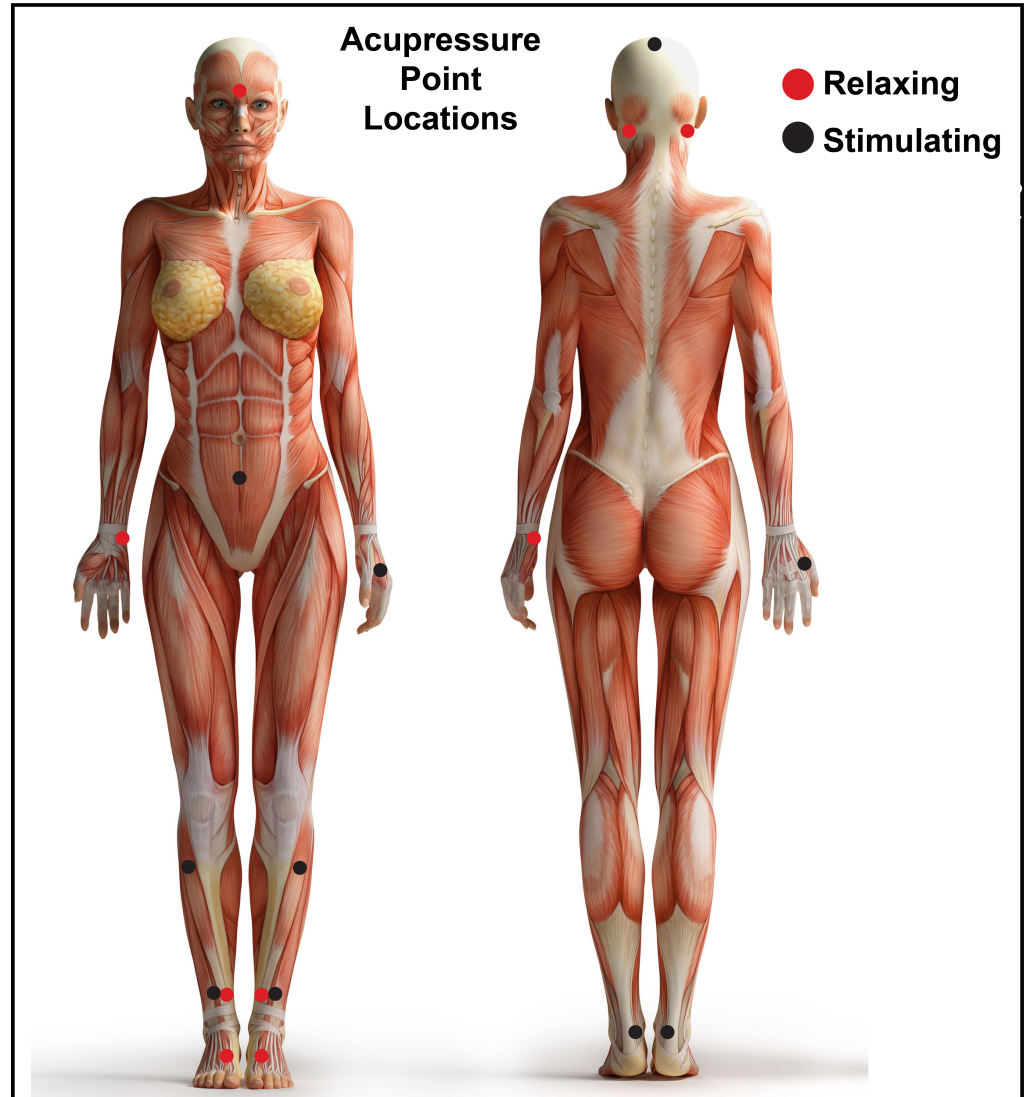
- Availability
- Empowerment
- Needle phobia
- Easy to adjust dose

We studied self-acupressure by randomizing 288 fatigued breast cancer survivors (stage 0-III) at least one-year after the end of active cancer treatment into a RCT

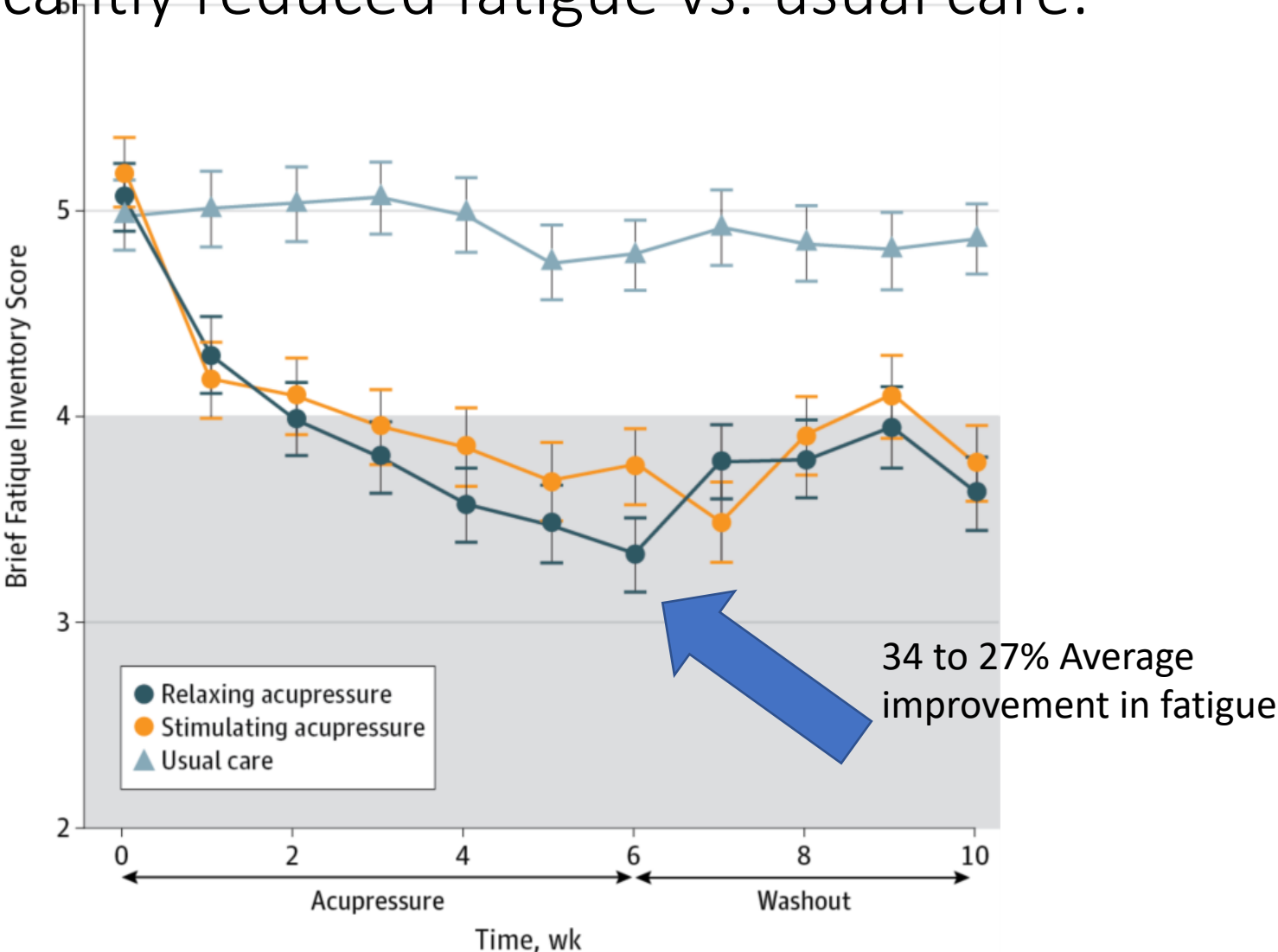


We explored two acupressure regimens, that we named relaxing and stimulating.

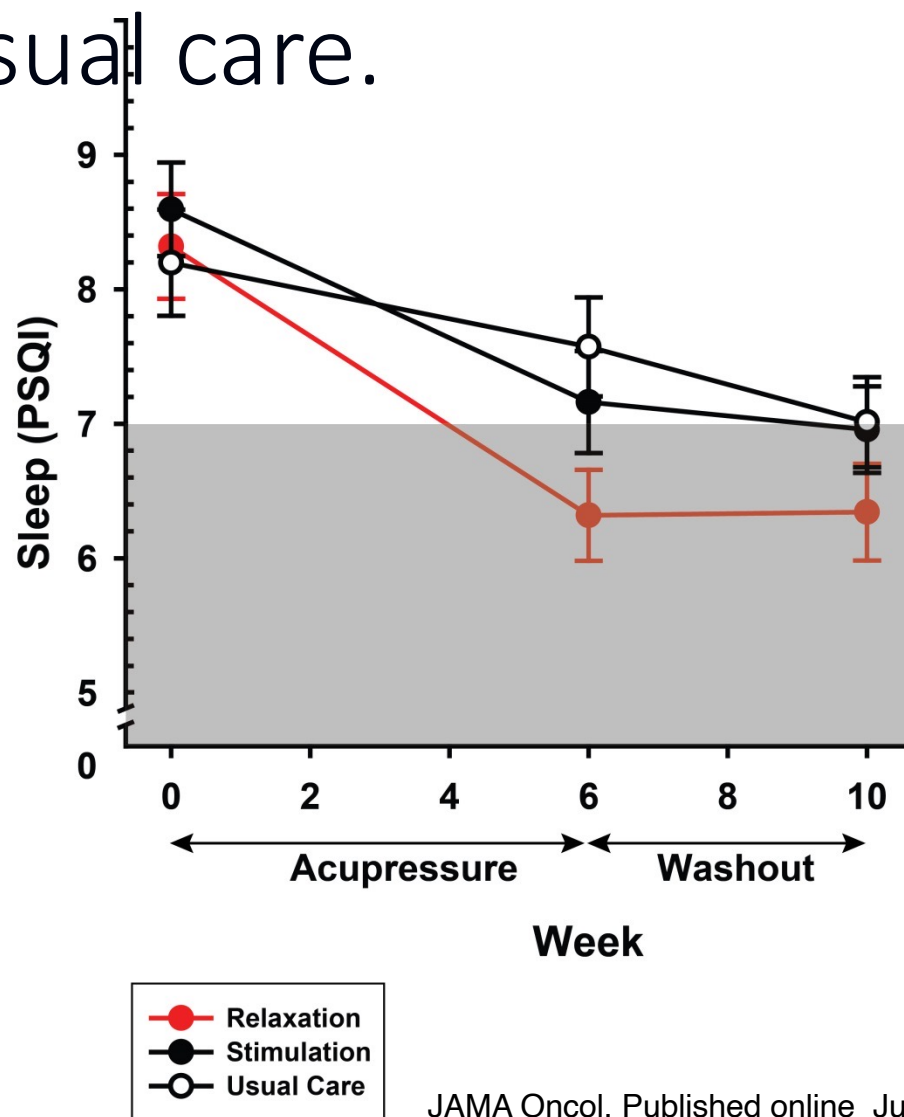
- Stimulate each acupoint for 3 minutes
- Do the acupressure 1x daily for 6 weeks
- 30 minutes per day



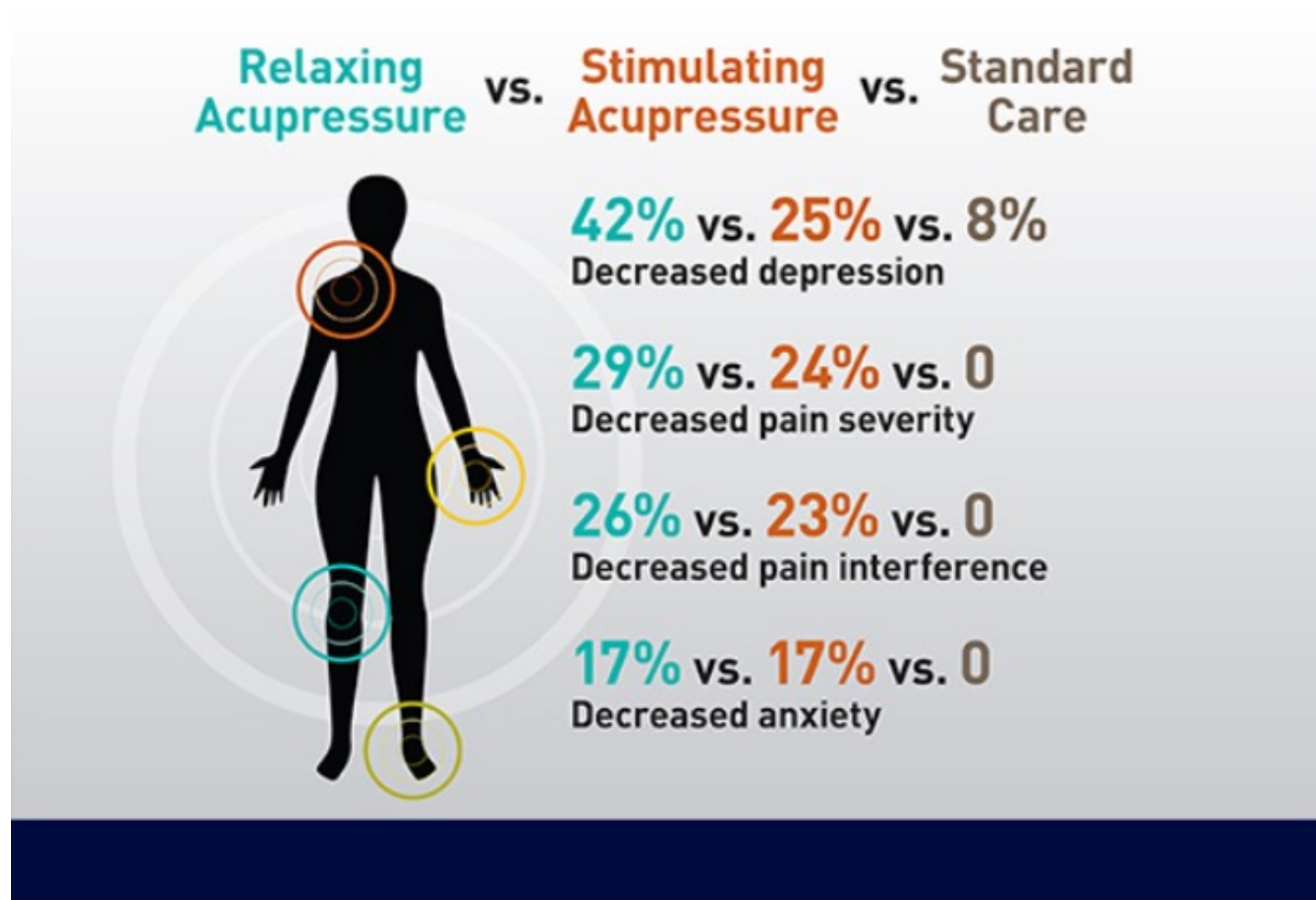
Six weeks of both acupressure regimens significantly reduced fatigue vs. usual care.

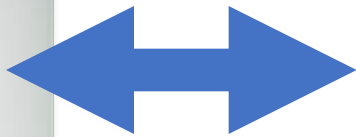


relaxing acupressure improves sleep significantly more than usual care, while stimulating acupressure was no better than usual care.

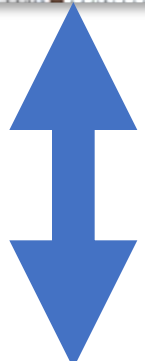
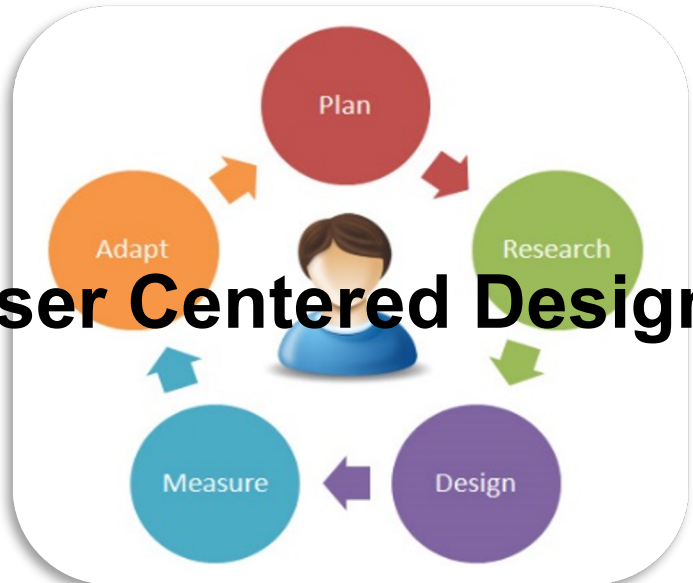


Both regimens of acupressure improved pain and anxiety versus usual care, but relaxing acupressure was significantly better than stimulating acupressure for depressive symptoms.





User Centered Design

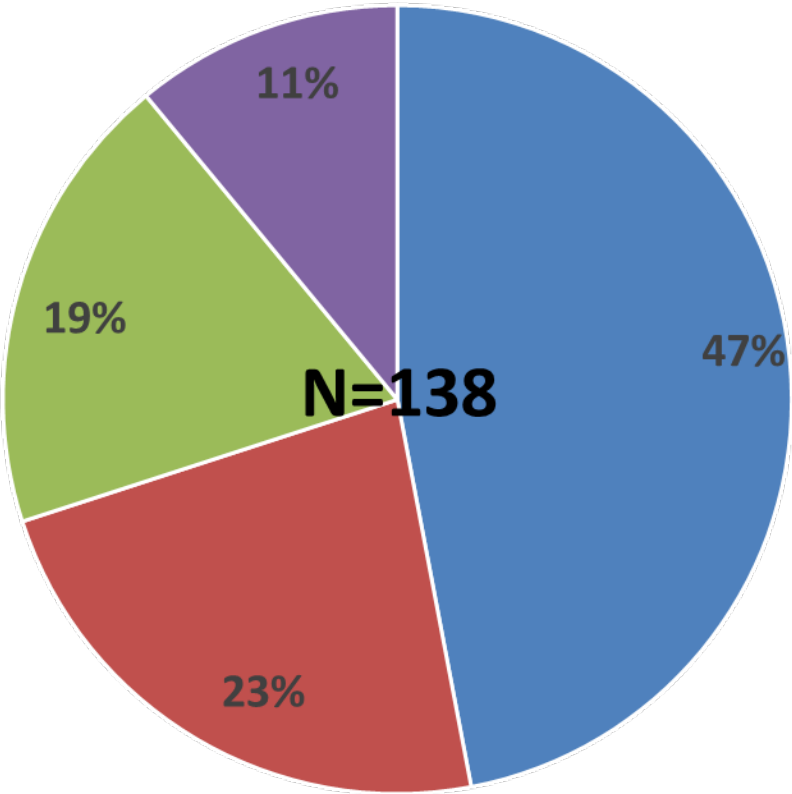


We employed user-centered design to determine how acupuncture should be delivered and to design the app and companion device.

- Designers focus on the users and their needs
- Involves users in every stage
- Iterative design process



People diagnosed with cancer overwhelmingly wanted to learn acupressure for fatigue using a mobile app.



- Mobile App
- Health Care Provider
- Website
- Acupuncture Care Provider

We first asked, “how do people diagnosed with cancer want to learn acupressure?”

We used 6 focus groups of 8 to 10 women diagnosed with breast cancer to design the app and companion device.



What's
an app?

Color
palettes/
schemes?

Pictures vs.
illustrations?

How do you teach
the right amount
of pressure?

We partnered with the app designers,
graphic artists and biomedical engineers.

**Arbor Medical
Innovation**

**U-M 3D
Media Lab**



**U-M
Researchers**



Focus groups said they wanted a separate device to learn the right amount of pressure and to administer acupressure.

What shape should the device be?



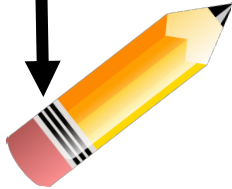
Arbor Medical Innovation

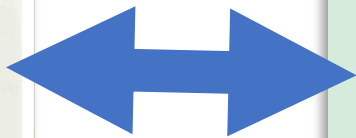
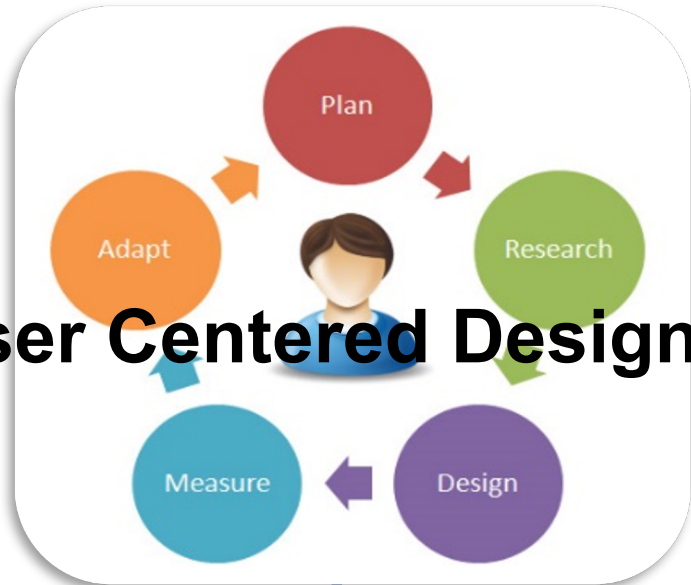
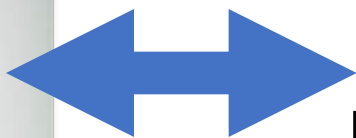
Show me how you would use the device?

What color and name should we give the device?



Examples of tools used to help design our device.

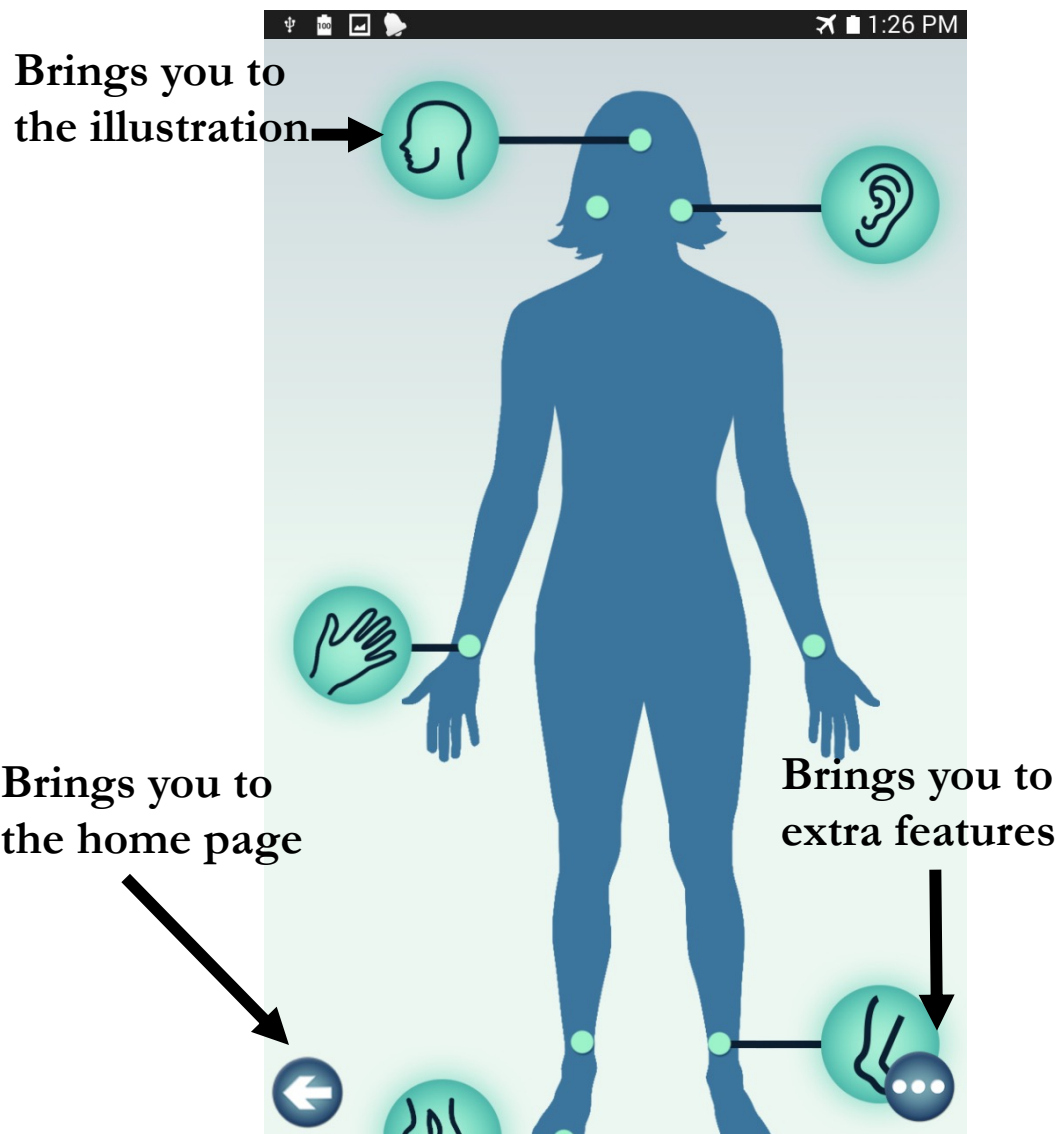
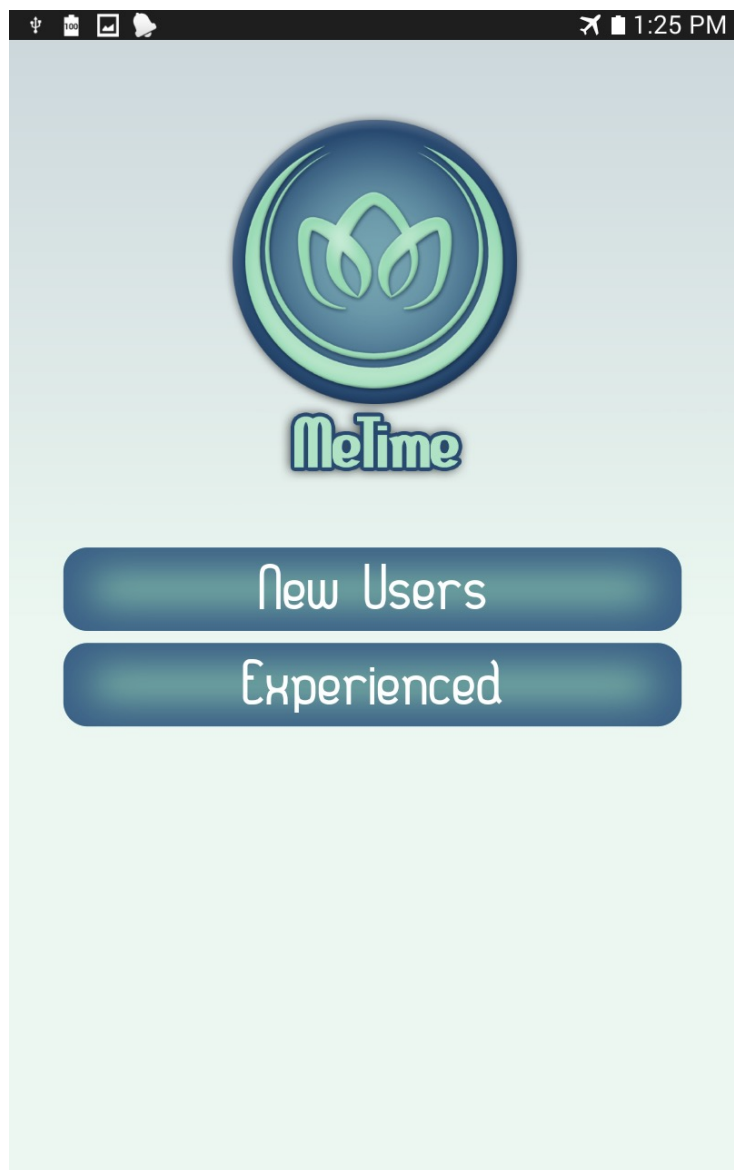




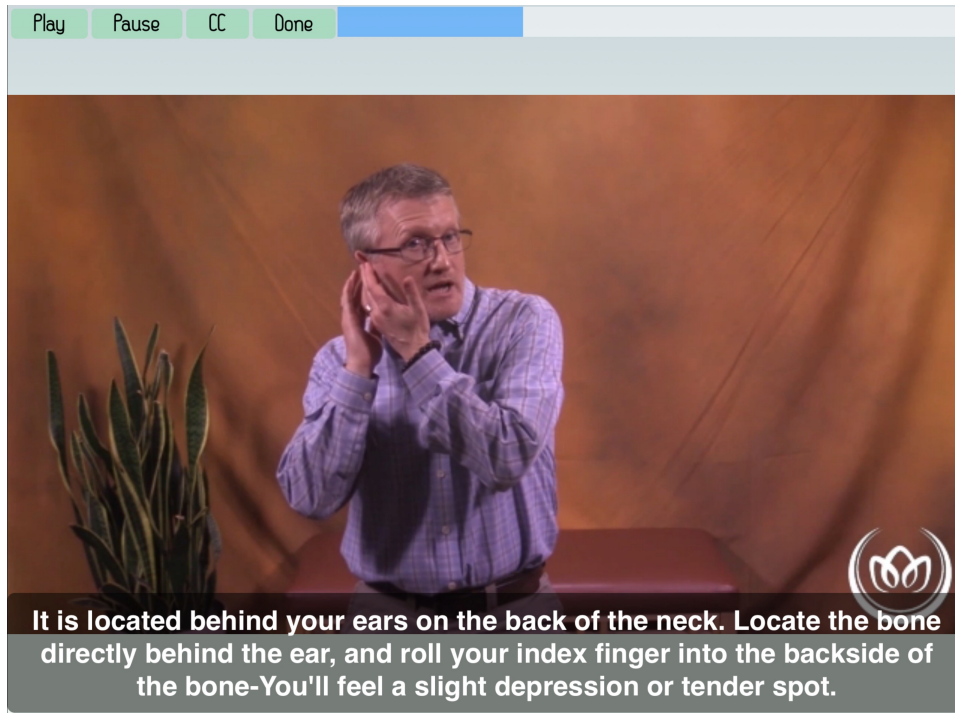
What's in our eHealth: Me Time
Acupressure mobile app and AcuEase
device?



The MeTime App first has an overview for new users, but let's experienced users skip these features.



The MeTime App features videos and illustrations of relaxing acupressure points.



**Brings you to
the all point
picture**



(Left & Right Sides)

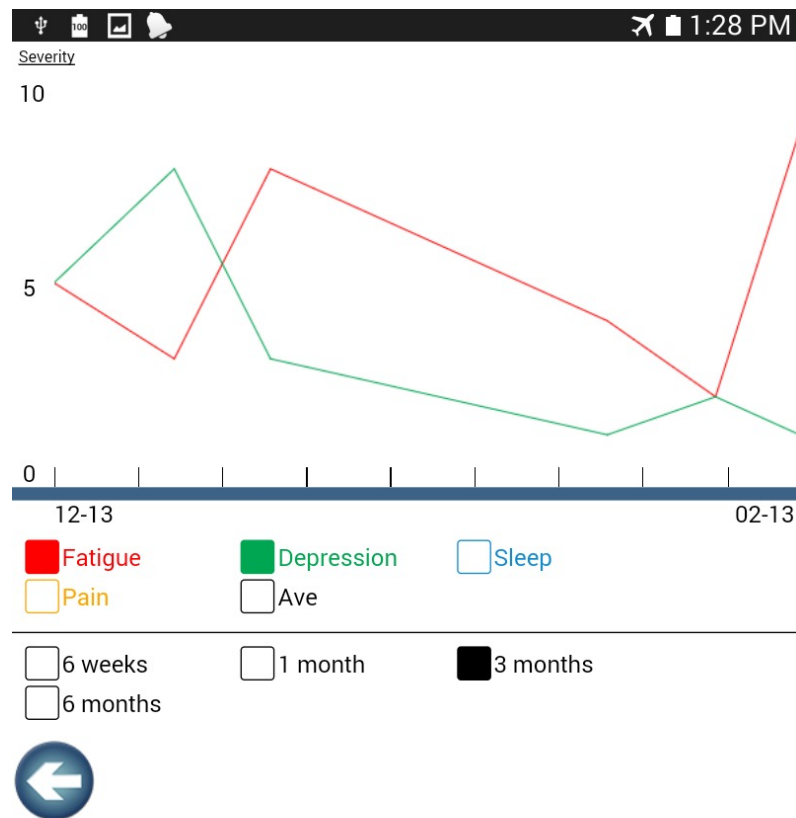
This point is located on the inside of the lower leg. Sit with the right ankle crossed over the left knee (vice-versa for the left side). Locate the bone of the ankle, and measure approximately 4 fingers width from the tip (peak) of this bone in a straight line towards the inside edge of the shinbone. This point will be located in a slight depression.

**Brings you to
the video**



The MeTime App also has added features such as a timer, calendar and symptom tracker.

2:54

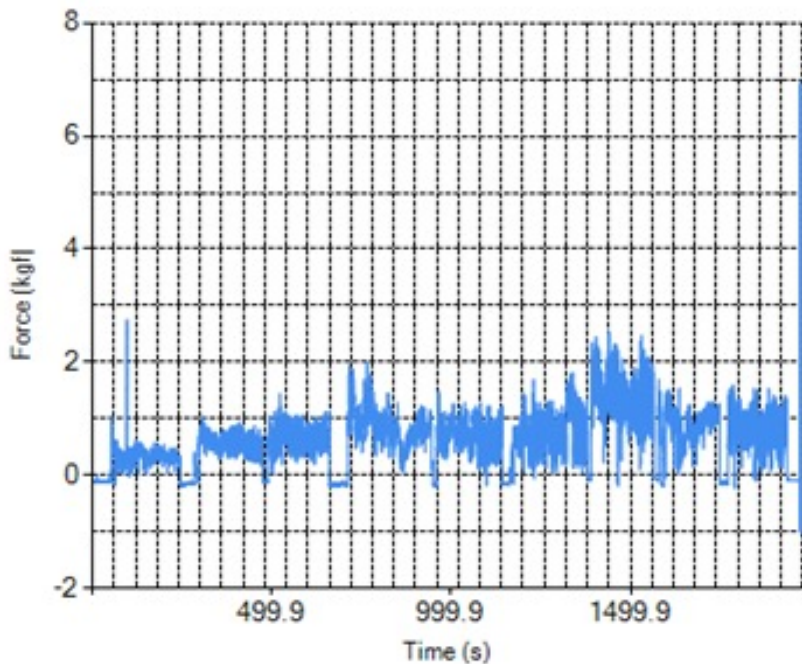


We also created the AcuEase Device to provide feedback about the correct amount of pressure.



In Association with Arbor Medical Innovations (AMI)

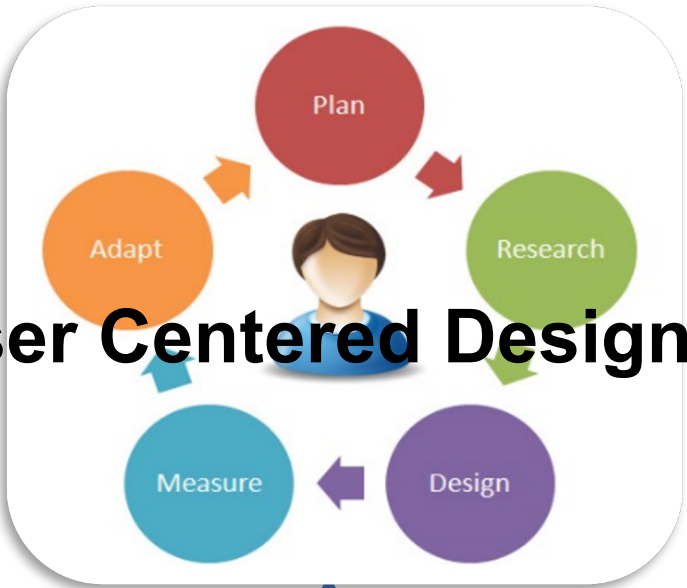
This is an output of a graph of “Time by Pressure” from one session of AcuEase use by a participant and corresponding “Study Logbook” from the same day and participant.



<hr/>	
Did you complete your acupressure today?	<input checked="" type="radio"/> Yes <input type="radio"/> No
<hr/>	
Start time of acupressure:	20:58
<hr/>	
End time of acupressure:	21:30
<hr/>	
Did you take a break between acupressure points?	<input type="radio"/> Yes <input checked="" type="radio"/> No

AcuEase
1730 seconds = 28.8 minutes

Study Log Book
32 minutes



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■ All of our amazing participants!

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- Benjamin Wright BS, Vinita Verma MPH, Kevin Shrestha BS, Tohfa Khabir: study coordinators

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- UM Fast Forward Innovation KickStarter Award



Let's do some
acupressure.

Yin Tang



Anmian



Heart 7



Spleen 6



Liver 3



<https://www.bigtimer.net/?minutes=3&repeat=false>

Thank You For Listening