

# Novel Approaches to the Non-invasive Treatment and Symptom Quantification of Raynaud's Disease – The Evolution of a Research Project



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## What was the identified problem?

- Contact made with RSA
- “Need” for smart glove
- Current gloves are flawed
- Batteries, thickness, design
- Collaborative project born



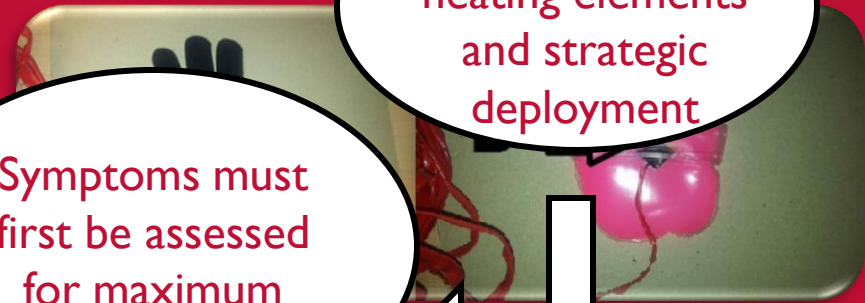
# Methodology I - Outcome



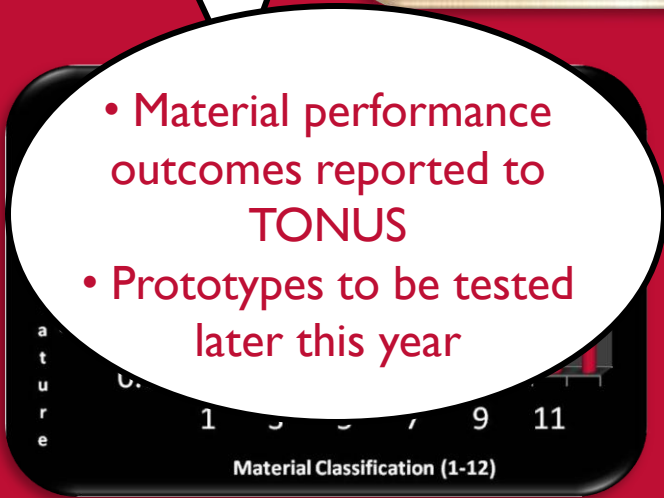
Heating element  
and battery  
problem still not  
rectified



Need for smaller  
heating elements  
and strategic  
deployment



Symptoms must  
first be assessed  
for maximum  
specificity



- Material performance outcomes reported to TONUS
- Prototypes to be tested later this year

Material Classification (1-12)

14 (total) on 24 combinations of materials

## Methodology 2 – Symptom Quantification



2 different types of  
symptom provocation  
– including new  
technique



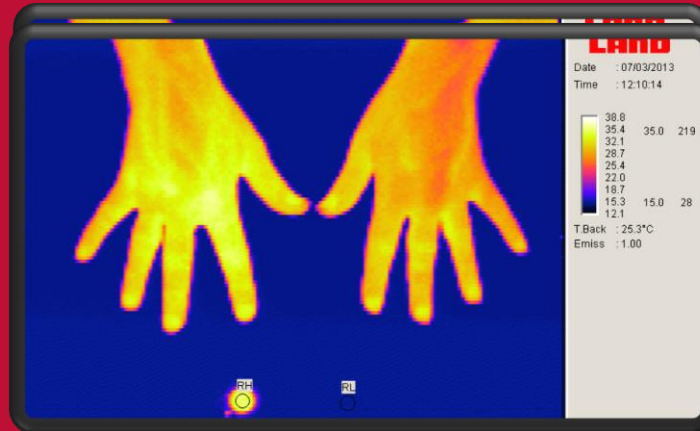
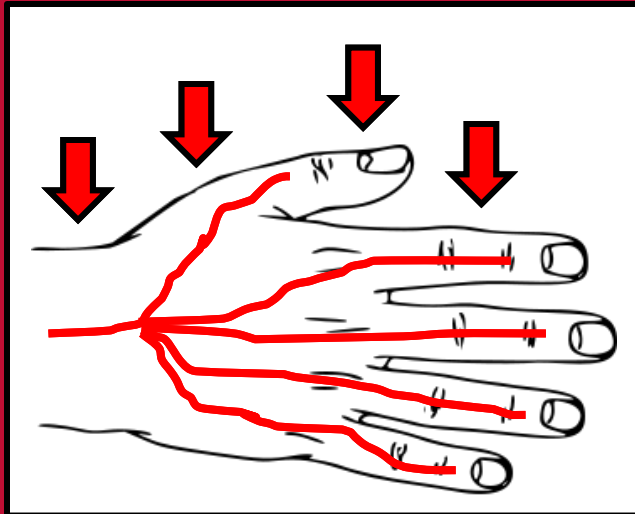
Both techniques use  
the same measurement  
(DDD) to compare  
diagnostic significance



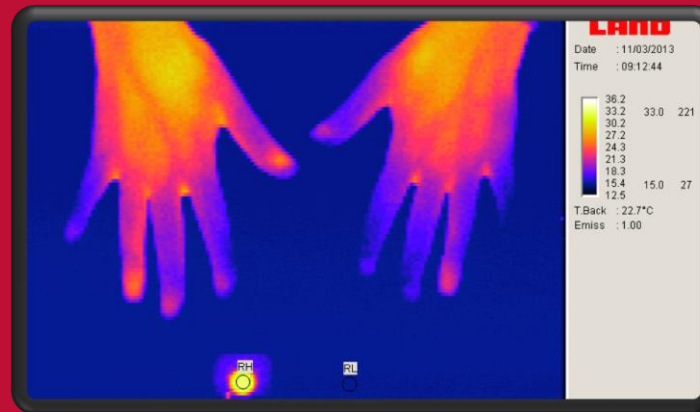
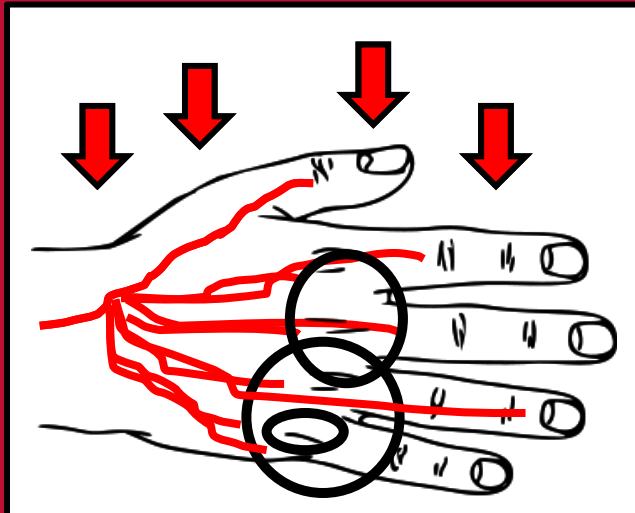
**Cold Provocation** –  
tried and tested  
methodology at approx  
10°C. New  
parameter of 18-19°C



**Warmth Provocation** –  
New methodology  
using an incubator to  
produce environment 28-  
29°C

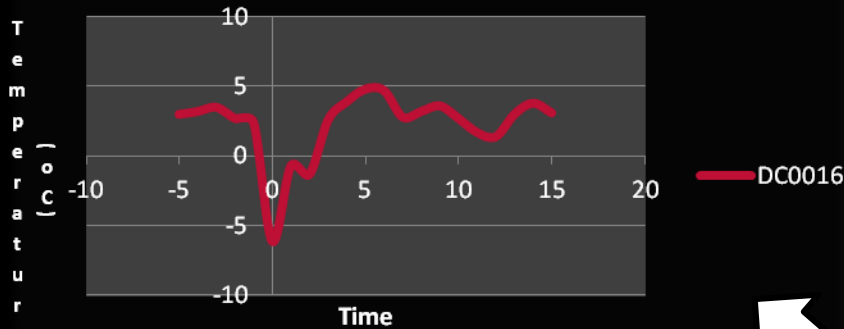


**NORMAL  
HANDS**

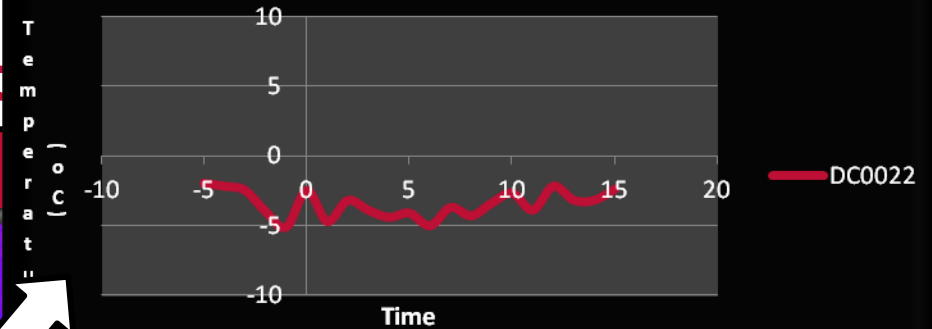


**RAYNAUD'S  
HANDS**

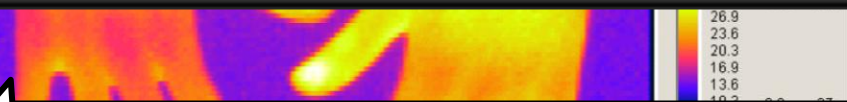
### Normal Hands Cold Provocation



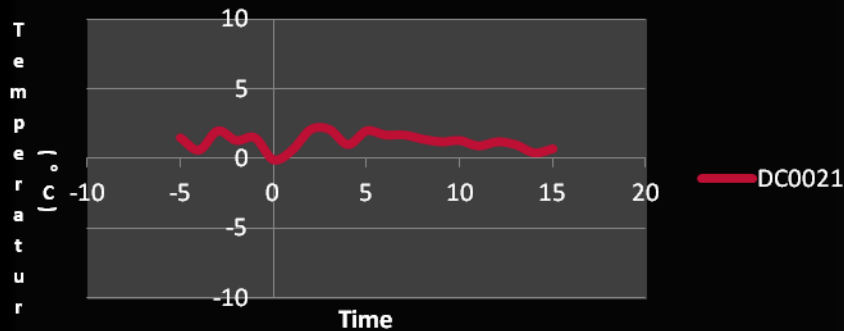
### Raynaud's Hands Cold Provocation



New provocation technique may be as effective as the old methods



### Normal Hands Warmth Provocation



### Raynaud's Hands Warmth Provocation

