To standardise skin temperature between PORH testing using FLPI could easily allow application to a large number of volunteers. These tests will be performed on 2 groups of healthy volunteers: Group 1 currently serves as a control group and Group 2 is expected to have cardiovascular risk factors such as hypertension and smoking. Of the measurement conditions tested, it was found that an upper arm blood pressure cuff and distal measurement site were the most reproducible (Variance 8.8%). There were no significant differences in PORH response between visit 1 and 2 for any combination of cuff position and measurement site (p>0.05). The most reproducible PORH results were found with an upper arm blood pressure cuff and distal measurement site. An upper arm cuff and proximal measurement site were second and a lower cuff and distal measurement site was the least reproducible (Variance 17.4% and 31%, respectively).

FLPI was used to assess the reproducibility of occlusive reactive hyperaemia (PORH) using different protocols to find optimal settings for repeated measures. The following combinations of cuff location and measurement site at the forearm were investigated on healthy volunteers on 2 separate occasions:

- Lower arm cuff/Distal measurement site
- Upper arm cuff/Proximal measurement site
- Upper arm cuff/Distal measurement site

FLPI was used for statistical analysis (p<0.05). An upper arm cuff and proximal measurement site at the forearm were investigated. An upper arm blood pressure cuff and a distal measurement site at the forearm, without pre-heating of the forearm to 35°C on 2 occasions.

T-test was used for statistical analysis (p<0.05). There was no significant difference in PORH response following a period of forearm skin heating to 35°C between 2 visits (p>0.05). Forearm skin heating prior to PORH did not improve the reproducibility of the test (Variance 41.2% vs 8.8% without heating).

These tests were performed on 2 groups of healthy volunteers: Group 1 (n=15 (18-30 years) and Group 2 (n=15 (40-70 years) and in the longer term in patients with cardiovascular disease risk factors.

FLPI was used to assess the reproducibility of changes in forearm skin blood flow following post occlusive reactive hyperaemia (PORH) using different protocols to find optimal settings for repeated measures. The following combinations of cuff location and measurement site at the forearm were investigated on healthy volunteers on 2 separate occasions:

- Lower arm cuff/Distal measurement site
- Upper arm cuff/Proximal measurement site
- Upper arm cuff/Distal measurement site

To standardise skin temperature between volunteers, PORH with FLPI were repeated following pre-heating of the forearm to 35°C on 2 occasions. T-test was used for statistical analysis (p<0.05). There was no significant difference in PORH response following a period of forearm skin heating to 35°C between 2 visits (p>0.05). Forearm skin heating prior to PORH did not improve the reproducibility of the test (Variance 41.2% vs 8.8% without heating).

The most reproducible PORH results were found with an upper arm blood pressure cuff and distal measurement site. An upper arm cuff and proximal measurement site were second and a lower cuff and distal measurement site was the least reproducible (Variance 17.4% and 31%, respectively).

Table 1:

<table>
<thead>
<tr>
<th>Cuff Position</th>
<th>Measurement Site</th>
<th>PORH% Visit 1 (±SE)</th>
<th>PORH% Visit 2 (±SE)</th>
<th>% Variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Arm</td>
<td>Distal</td>
<td>290 ±126</td>
<td>284 ±125</td>
<td>8.8%</td>
</tr>
<tr>
<td>Upper Arm</td>
<td>Proximal</td>
<td>276 ±117</td>
<td>283 ±123</td>
<td>17.4%</td>
</tr>
<tr>
<td>Lower Arm</td>
<td>Distal</td>
<td>351 ±137</td>
<td>268 ±144</td>
<td>31.1%</td>
</tr>
</tbody>
</table>

The reproducibility of PORH with FLPI following a period of forearm skin heating to 35°C.

Figure 1:

- Lower arm and upper arm cuff positions
- Proximal and distal measurement sites

Figure 2:

- Skin heating probe at distal site

Figure 3:

- Moor FLPI

Figure 4:

- PORH trace of forearm microvascular skin perfusion

Figure 5:

- Maximum PORH response measured with FLPI following a period of forearm skin heating to 35°C

Figure 6:

- Upper Cuff/Distal Site