

# October Study of the Month

## Effect of Pressures and Durations of Cupping Therapy on Skin Blood Flow Responses



**Summary by**  
**Lillianne Vogt , 3rd year CCNM student:**

### Introduction:

Cupping therapy is used to treat musculoskeletal diseases such as myofascial pain syndrome and osteoarthritis. It has also become popular amongst elite athletes in addressing their pain and musculoskeletal impairments. Although cupping therapy is commonly practiced, there is a lack of detailed clinical guidelines regarding the intensity of cupping therapy, including the pressure and duration. This study aimed to investigate the effect of different pressures and durations of cupping therapy on skin blood flow (SPF) responses.

### Study Design:

A 2 x 2 factorial including two negative pressures at -225 and -300 mmHg and two durations at 5 and 10- minutes. A counterbalance design was used to minimize the order effect.

### Population:

Healthy adults (n = 12) between the ages of 18 and 40 (mean age: 29.5 ± 8.5 years; mean body mass index: 22.3 ± 2.6 kg/m<sup>2</sup>; systolic blood pressure: 106.6 ± 15.4 mmHg; diastolic blood pressure: 72.3 ± 7.6 mmHg; heart rate 75.1 ± 7.9 beats/min).

### Intervention:

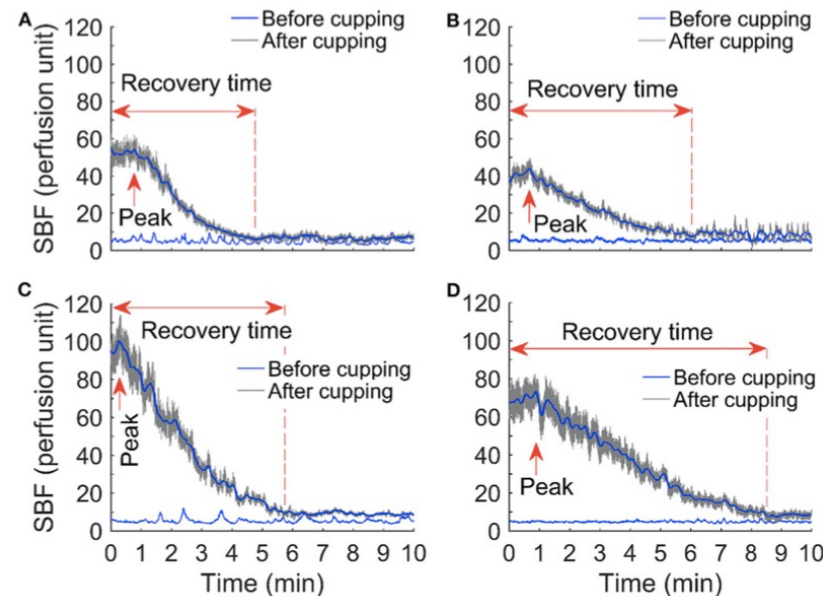
Participants underwent four protocols of cupping therapy located at the Xiaoluo acupoint (known as Triple Warmer 12) on the non-dominant posterior superior portion of the upper arm of each participant using an electric cupping device set at two negative pressures (-225 and -300 mmHg) and performed at two durations (5 and 10- minutes).

### Outcome Measures:

SBF was measured using a laser doppler flowmetry (LDF) utilizing a low-power beam (2mW) of a solid-state diode laser source (780 nm wavelength) to the skin. Baseline SBF, peak SBF, total SBF, and recovery time of the SBF response to cupping therapy was measured and recorded.

### Results:

In each of the four cupping therapy sessions an initial rapid increase in SBF was observed where every peak SBF was reached within 1 – 3 minutes. The SBF responses from each of the cupping therapies resulted in a peak SBF that was 5 – 20 times greater than the baseline SBF.



**Figure 1:** The results from the four cupping therapy sessions assessing skin blood flow are shown above (A: -225 mmHg x 5 min; B: -225mmHg x 10 min; C: -300mmHg x 5min; D: -300mmHg x 10 min).

### Discussion:

The results of this study showed that under the same duration of cupping therapy, the -300 mmHg was more effective on increasing SBF compared to -225 mmHg after cupping therapy. In addition, under the same negative pressure, a 5- min cupping therapy duration was more likely to cause a larger total SBF compared to a 10- min cupping therapy session.

Limitations of this study included assessment preformed only on one muscle group (triceps), cupping an acupoint vs non-acupoint site, and assessment of homogenous group with similar BMI scores.

How would cupping more than the Xiaolou (Triple Warmer 12) acupoint on the non dominant arm influence the SBF? What effect would cupping different acupoints have? How does the type of cups affect the rate of SBF?

### Reference:

Wang X, Zhang X, Elliott J, Liao F, Tao J, Jan Y. Effect of Pressures and Durations of Cupping Therapy on Skin Blood Flow Responses. *Front Bioeng Biotechnol.* 2020 Dec 8;8(608509):1-7.

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