

**Official study title: A Single Session of Pole Dance Reduces Blood Pressure in  
Women**

**NCT number: [to be filled after registration]**

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## **Study Protocol and Statistical Analysis Plan**

### **Introduction**

Pole dance (PD) combines aerobic and isometric components, with potential to influence cardiovascular variables. The primary objective of this study was to evaluate the acute blood pressure response after a single PD session in young normotensive women. The hypothesis was that a PD session would promote post-exercise hypotension for systolic blood pressure (SBP), without significant changes in diastolic blood pressure (DBP).

### **Study Design**

This was an experimental, randomized study with a control session. The sample consisted of 21 women practicing pole dance at an intermediate level. Each participant performed two sessions on different days: one experimental session, which consisted of a 60-minute pole dance class, and one control session, which consisted of 60 minutes of seated rest without physical effort. The order of the sessions was defined randomly to ensure balance and minimize bias.

### **Inclusion Criteria**

Participants were eligible if they were female, aged 18 years or older, had an intermediate level of pole dance experience (with the ability to perform aerial movements of medium difficulty, including inverted figures), and had not performed vigorous physical activity within the previous 24 hours.

### **Exclusion Criteria**

Participants were excluded if they were pregnant, if they presented injuries that limited the practice of pole dance, or if they had clinical conditions that contraindicated physical effort.

### **Procedures**

At the beginning of the study, participants underwent an anamnesis to collect sociodemographic data, lifestyle information, comorbidities, and details related to pole dance practice. Anthropometric measurements, including weight, height, and body mass index, were also recorded. In the experimental session, participants completed a 60-minute pole dance class, which included a 15-minute warm-up with joint mobility and stretching exercises, followed by 10 minutes of strength and resistance training combined with transitions. The next 15 minutes focused on aerial movements using the static pole, while another 15 minutes were dedicated to sequences on the spinning pole. The session concluded with a 5-minute passive stretching period. In the control session, participants remained seated for 60 minutes without performing any physical effort.

Blood pressure and heart rate were measured using a digital sphygmomanometer (Omron HEM-7113) at five time points: before the session, immediately after, and at 15, 30, and 45 minutes post-session. Participants were instructed to avoid caffeine, alcohol, smoking, and vigorous physical activity in the 24 hours prior to data collection. Perceived exertion was assessed at the end of the experimental session using the Borg modified scale (0–10).

### **Statistical Analysis Plan**

Data analysis was performed using SPSS version 17.0. Descriptive statistics were used to characterize the sample, with continuous variables expressed as mean and standard deviation, and categorical variables expressed as absolute and relative frequencies. Differences in systolic blood pressure, diastolic blood pressure, and heart rate between sessions and across time points were analyzed using repeated measures ANOVA (session  $\times$  time), followed by Bonferroni post-hoc tests. Spearman's correlation coefficient was applied to examine associations between blood pressure, heart rate, and perceived exertion. A significance level of  $p < 0.05$  was adopted for all analyses.

### **Ethical Considerations**

The study was approved by the Ethics Committee of the Federal University of Santa Catarina (approval number 6.040.767). All participants were informed about the procedures, risks, and benefits of the research and provided written informed consent prior to participation.

### **Expected Results**

It was expected that systolic blood pressure would show a significant reduction 45 minutes after the experimental session, while diastolic blood pressure would remain unchanged. Heart rate was anticipated to increase immediately after the pole dance session, followed by a gradual return to baseline values during the recovery period.

### **Timeline**

The study was conducted and completed in 2023. Data collection occurred during that year, with each participant performing both the experimental and control sessions on separate days. Blood pressure and heart rate were monitored for 45 minutes after each session, and statistical analyses were finalized following data collection.