



**A Study of the Health Benefits of Far-Infrared Sauna Therapy
Conducted by the University of Missouri, Kansas City
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Purpose

Evaluate the effects of far infrared sauna therapy on blood pressure, cholesterol, weight, pain, and the amount of heavy metals (such as mercury) in the body. Change in blood pressure will be the primary outcome measure.

Materials and Methods

- Subjects were randomly assigned to receive sauna sessions in either the far infrared sauna or a control sauna that will emit heat, however not far infrared heat. The saunas looked identical. The subjects had a 30-minute sauna session 3 days a week for 6 weeks at Sunlight Saunas Corporate Headquarters in Lenexa, Kansas. Study conducted June and July 2005.
- Subjects: Included generally healthy subjects between the ages of 21-65 years.
- Exclusion criteria were as follows:
 - Anyone on nitrates or prior heart attack or coronary artery disease
 - Pregnancy (urine pregnancy test will be performed on any woman with child-bearing potential)
 - Lupus
 - MS
 - Hemophilia
 - Sickle cell disease
 - Weight > 220 pounds
 - Breast Implants
 - Changes in medication in the last month or during our study
 - Already using saunas
- This was a randomized double-blinded placebo controlled study.
- A power analysis was performed to determine the number of subjects necessary to detect a statistically significant change in the primary outcome measure, mean blood pressure; alpha = 0.05 power=0.80.
- Descriptive statistics were used to summarize study measures. Student's tests were used to compare the groups with regard to mean change in BP, pulse, weight, waist circumference, total cholesterol, LDL and urinary concentrations of mercury.



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- At all sauna sessions a registered nurse measured and record the subject's blood pressure, pulse, weight, and waist circumference. The subject rated their pain on a standard pain scale. At the first and last sauna session the nurse drew blood for a fasting lipid profile. Also the subjects will provided a 12-hour urine collection at the first and last visit for analysis of mercury, lead, and cadmium.

Results

- Blood pressure: The far-infrared sauna did lower both systolic and diastolic blood pressure. The diastolic blood pressure in the far-infrared group was statistically significant with a p value of .001. In the far-infrared group the systolic blood pressure decreased from an average of 130.5 before the study to 124 at the completion of the study. The control group also had decreases in both systolic and diastolic blood pressure however, neither were statistically significant.
- Pulse: The far infrared sauna group had an increase in pulse rate during each sauna session from an average of 74.25 to an average of 83.375. This change was statistically significant with a p value of .0328. The control sauna did not show and increase in the pulse rate. The control sauna showed a drop in the pulse rate from an average of 77.14 before the sauna session to 72.30 after the session. This was not statistically significant.
- Weight: The far infrared sauna did not show a statistically significant difference in weight compared to the control sauna.
- Cholesterol: The far infrared sauna and the control sauna both showed a decrease in the cholesterol levels however, neither were statistically significant.
- Heavy metals: The random people entered in our study did not have elevated levels of heavy metals in their systems. We were unable to run a statistical analysis on the numbers due to the low levels noted before the study began.
- Pain: This was difficult to assess because it is a subjective measurement. Many of the subjects enrolled in the study initially reported no pain. We were unable to do any analysis on these numbers due to the amount of people that denied pain to begin with.

