



## Original Article

# Bodily differences between Cold- and Heat-prescription groups in Sasang medicine

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## ABSTRACT

**Background:** In Sasang medicine, patients are treated with herbal prescriptions based on Cold-Heat patterns induced by conditions of physiological equilibrium among internal organs, which also induce differences in body circumferences. The objective of the current study was to elucidate the relationship between Cold- and Heat-prescription types and body circumferences.

**Methods:** Data from suitable subjects (115 males and 222 females) were collected, and the body circumferences were compared according to their Cold- and Heat-prescription grouping. For male subjects with significant body circumference differences between the Cold- and Heat-prescription groups, the body circumference ratios were analyzed by comparing the differences between these groups using ranked analysis of covariance (ANCOVA).

**Results:** In men, consistent differences were observed in the body circumference measures and ratios between the Cold- and Heat-prescription groups. The Heat-prescription groups showed greater abdominal circumferences, notably demonstrated by a higher rib-to-pelvic circumference ratio in the Tae-Eum (TE) type ( $p=0.041$ ) and a higher chest-to-hip circumference ratio in the So-Yang (SY) type ( $p=0.087$ ).

**Conclusion:** In the SY-type men, the chest circumference was significantly greater in the Heat-prescription group compared to the Cold-prescription group. In the TE-type men, the rib-to-pelvic circumference ratio was significantly higher in the Heat-prescription group than in the Cold-prescription group.

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## 1. Introduction

In East Asian traditional medicine, patients are treated with herbal prescriptions based on pattern identification according

to the doctor's observations of the patient's pulse and external appearance, including the face, tongue, voice, body shape, stool, urine, sweating, and skin.<sup>1,2</sup>

For pattern identification, the most important and unique pattern is the Cold-Heat pattern, which reflects not only

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temperature but also metabolic activity.<sup>3</sup> The Cold pattern is related to low metabolism, whereas the Heat pattern is related to high metabolism. Therefore, patients with a Heat pattern show signs and symptoms such as fever, sweating, thirst, yellow urine, and rapid pulse, whereas those of patients with a Cold pattern include cold limbs, little sweating, little thirst, clear urine, and a slow pulse.<sup>4</sup>

Sasang medicine is a unique traditional Korean medicine based on the belief that all patients should be treated in a manner that reflects their unique Sasang types. Although patients may have the same disease, they are prescribed different herbal drugs and foods consistent with their Sasang type.<sup>5</sup>

The Sasang type is defined by conditions of physiological equilibrium among internal organs, which lead to differences of psychological temperaments, face and body shapes, and pathophysiological symptoms.<sup>6,7</sup> Among those factors, body circumferences from head to hips have been observed to differ in association with Sasang types and assessed in many studies.<sup>8</sup>

The Cold–Heat pattern is the decisive factor for the prescription of herbal medicines in Sasang medicine.<sup>9</sup> Donguisusebowon (Longevity and life preservation in Eastern medicine)<sup>5</sup> described the pathologies and herbal medicines of each Sasang type in terms of the Cold–Heat pattern. Therefore, Sasang formulas have been categorized into two groups, with herbal formulas for both the Cold and Heat patterns.<sup>5</sup>

We suggest that body circumferences and the Cold–Heat pattern have a defined relationship through the use of Sasang formulas. However, few studies have assessed the relationship between body circumferences and Cold–Heat patterns. In the current study, we analyzed differences of body circumferences between patients prescribed herbal medicines for both patterns.

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## 2. Methods

### 2.1. Patients and diagnosis

From 2013 to 2015, a total of 915 patients treated with Sasang medicine at various Korean medicine clinics were evaluated to investigate the relationship between the Sasang medical herbal formulas prescribed and the various phenotypes or symptoms.

A total of 337 patients treated with typical formulas for the Cold or Heat pattern, conforming to the Tae-Eum (TE) or So-Yang (SY) type, were included in this study. Patients prescribed atypical formulas were excluded. Because many So-Eum type formulas in the data were atypical, this type was also excluded. For this reason, only a few So-Eum patients remained in the typical Cold or Heat pattern group.

Diagnosis of the patients' Sasang type was performed by experts using the Sasang Constitutional Analysis Tool.<sup>10</sup> The tool consists of the analysis of the face, body shape, and voice along with information from a questionnaire. When cutoff values are used, the diagnostic accuracy of this tool is 78.7% for males and 59.8% for females.<sup>1</sup> All procedures followed standard protocols.

This study was approved by the Institutional Review Board of the Korea Institute of Oriental Medicine (I-1210/002-002-03).

### 2.2. Formulas and group

According to Sasang medicine, Cold and Heat patterns exist for each Sasang type. The concepts of Cold–Heat patterns are not so different from those of traditional Chinese medicine. Thus, we hypothesized that the Cold–Heat prescription was related to the Cold–Heat pattern. Accordingly, we divided the patients into Cold- and Heat-prescription groups.

Taeumjowi-tang is the typical formula used for treating the Exterior Cold pattern in the TE type. Yuldahanso-tang and Galgeunhaegi-tang are used to treat the Interior Heat pattern in the TE type. In the SY type, Hyungbangsabaek-san and Hyeongbangjihwang-tang are used for the Exterior Cold pattern, whereas Yanggyeoksanhwa-tang is used for the Interior Heat pattern (Table 1).<sup>5</sup>

Therefore, for the TE type, the patients prescribed Taeumjowi-tang were grouped as the Cold-prescription group, and those prescribed Yuldahanso-tang or Galgeunhaegi-tang were grouped as the Heat-prescription group. For the SY type, the patients prescribed Yanggyeoksanhwa-tang were grouped as the Heat-prescription group, and those prescribed Hyungbangsabaek-san or Hyeongbangjihwang-tang constituted the Cold-prescription group.

### 2.3. Eight-part body-trunk circumference measurements

A total of eight parts of the body—the forehead, neck, axillae, chest, ribs, waist, pelvis, and hips—were measured for circumference. The axillary, chest, rib, and waist circumferences were used in analysis as trunk circumferences for comparing other body circumferences. According to the theory that each body circumference differs depending on the Sasang type, the eight-part body circumference measurements are used to diagnose the Sasang type.<sup>11,12</sup> The measurements were performed according to the standard protocols provided in Table 2.

The ratios were calculated by dividing the circumferences. For example, RC3\_C7 is the ratio of the axillary circumference divided by the pelvic circumference.

### 2.4. Statistical analysis

An unpaired Student *t* test was used to compare the general characteristics of the patients (Table 3). Ranked analysis of covariance was performed to analyze the circumferences and ratios according to sex, Sasang type, and Cold–Heat prescription group. The SPSS 20 software (IBM Corp., Armonk, NY) was used for statistical analysis.

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## 3. Results

### 3.1. General characteristics of patients

Table 3 shows the general characteristics of the patients. No significant differences were observed for age, height, weight,

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