

# Characteristics of Facial Skin Surface According to Sasang Constitution Classification

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## 사상체질에 따른 피부 표면 상태 분석

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### Abstract

For better diagnosis and prescription in Korean traditional medicine, Lee Je-Ma (1837-1900) created Sasang Constitution classification which was divided into four groups of Taeyangin, Soyangin, Taeumin and Soumin based on both body shape and natural disposition. The purpose of this study was to investigate the characteristics of facial skin parameters (hydration, lipid and pH) on forehead and cheek according to Sasang Constitution classifications of Taeumin, Soyangin and Soumin in Korean. Eighty-nine Korean female subjects were recruited for this study and the average age of them was  $19.9 \pm 0.84$  years. The four groups by the Sasang Constitution were classified by questionnaire for the Sasang Constitution classification proposed by Kyung-Hee Oriental Medicine Hospital. Consequently, thirty-eight (42.7%) among the subjects were grouped into Soumin, twenty-nine (32.6%) into Taeumin, twenty (22.5%) into Soyangin and two (2%) into Taeyangin. Taeyangin group was excluded from statistical analysis due to small subjects. Hydration, lipid and pH parameters on forehead and cheek were measured by using non-invasive instruments of Corneometer (CM 825, Schwarzhaup, Germany), Sebumeter (SM 815, Schwarzhaup, Germany) and Skin-pH-meter (pH 905, Schwarzhaup, Germany), respectively. The measurements by the same investigator were performed under standardized condition with a room temperature of  $21^{\circ}\text{C}$  and a humidity level of 40% to 50%. As a result, hydration ( $F=25.481$ ,  $p=.000$ ), lipid ( $F=5.753$ ,  $p=.005$ ) and pH ( $F=5.010$ ,  $p=.009$ ) of the forehead skin showed significant differences in the order of Taeumin, Soyangin and Soumin. Hydration ( $F=23.216$ ,  $p=.000$ ), lipid ( $F=6.898$ ,  $p=.002$ ) and pH ( $F=5.070$ ,  $p=.008$ ) of the cheek skin showed significant differences in the order of Taeumin, Soyangin and Soumin. In conclusion, facial skin surface seemed to be dependent on Sasang Constitution classification in Korean. These findings indicated that Sasang Constitution classification might be an useful esthetic treatment for caring facial skin in the future.

### 1. Introduction

There are three types of medicines in Korea, western medicine, oriental medicine and alternative medicine. In western countries, oriental medicine is thought as alternative medicine. But in Korea, both western medicine and oriental medicine (traditional Korean medicine) are official conventional medicines. Now oriental medicine is the conventional medicine and has the same legal status as western medicine in Korea [1].

Current changes in medicine have led researchers to focus on preventive, predictive and personalized medicine. Personalized medicine represents a form of individualized medicine wherein medical treatment is tailored to the individual to maximize efficacy and safety [2].

Sasang Constitution, as a traditional Korean medical typology, epitomizes personalized medicine based on both physical and psychological characteristics and features, and shares much similarity with the Western academic tradition [3].

In particular, Sasang Constitution also appears to be related to Hippocrates' concept of the four humors [4].

Sasang Constitution, originally theorized by Lee Je-ma is widely used in the clinical diagnosis and treatment of disease in Korea [5]. In Sasang Constitution, one's physical constitution is classified according to the traits of an individual's mind and body, with the implication that one's sensibility and response to certain drugs can be different depending on one's Sasang type [6]. Sasang Constitution is a branch of traditional Korean medicine that classifies human beings into four constitutions (Taeyangin, Taeumin, Soyangin, and Soumin). Sasang Constitution states that a patient's susceptibility to pathology or drug response differs by constitution [7]. Sasang Constitution, originally theorized by Lee Je-ma is widely used in the clinical diagnosis and treatment of disease in Korea [5]. In Sasang Constitution, one's physical constitution is classified according to the traits of an individual's mind and body, with the implication that one's sensibility and response to certain drugs can be different depending on one's Sasang type [6].

## 2. Methods

### 2.1. Subjects

This study was conducted by Eighty-nine Korean female subjects were recruited for this study and the average age of them was  $19 \pm 0.84$  years in march in 2009. All participants agreed to informed consent for the full assessment which is described in detail.

### 2.2. Procedures

The population of Taeynagin individuals is extremely low (2.2%) [8]; therefore, it is not possible to classify Taeyang in individuals using QSCC II. As a result, only data regarding the other three constitutions were evaluated in this study.

Four groups of the Sasang Constitution were classified using the revised questionnaire for the

Sasang Constitution Classification II (QSCC II) proposed by Kyung Hee Oriental Medicine Hospital. QSCC II is a self reporting survey method with 121 questions developed in 1996 to classify Sasang Constitution [9], and QSCC II is a survey method that only makes use of 54 questions that have been proved to have significance [10].

Hydration, lipid and pH on forehead and cheek were measured using non-invasive instruments of Corneometer (CM 825, Schwarzhaup, Germany), Sebumeter (SM 815, Schwarzhaup, Germany) and Skin-pH-meter (pH 905, Schwarzhaup, Germany), respectively. The measurements by the same investigator were performed under standardized condition with a room temperature of  $21^{\circ}\text{C}$  and a humidity level of 40% to 50% in March. Before the measurements, volunteers were given one hour and half to adapt to room conditions without covering the measurement sites with clothes. On the day of examination, the skin was not washed and nothing was applied to the skin surface. They are measured exactly on the same sites three times like forehead and cheeks.

### 2.3. Statistical Analysis

Demographic differences between Sasang types (Soyangin, Taeumin and Soeumin) were tested using Analysis of Variance (ANOVA).

The quantitative values of the three skin parameters were used to test statistical differences among Sasang Constitution groups with one-way ANOVA with repeated measures in SPSS 12.0 Window with a level of significance set at 0.05. Post hoc multiple comparisons were performed with Tukey's honestly significant difference tests.

## 3. Results

The total number of subjects for whom complete data were available was 89. The subjects were classified according to Sasang Constitution.

[Table 1] The Composition of Sasang Constitution (N=89)

Sasang Constitution	Frequeuncy
Taeyangin	2(2.2)
Taeumin	29(32.6)
Soyangin	20(22.5)
Soumin	38(42.7)

By the classification of the constitution according to Sasang Constitution, it was resulted that 42.7% of the classified women belonged to Soumin, whereas Taeumin(32.6%), Soyangin(22.5%), Taeyangin(2%) (Table 1). Therefore, Soumin is viewed as the most predominant among constitution, but Taeyangin constitution is very rare.

[Table 2] Evaluation of skin surface hydration according to Sasang Constitution

Unit : AU(arbitrary unit)					
Measurement area	Taeumin	Soyangin	Soumin	F	p value
	Mean±SD				
forehead	68.63±9.16	64.26±13.93	45.52±14.89	25.481	.000***
cheek	73.56±9.78	68.78±12.05	50.52±16.78	23.216	.000***

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

The measurement of hydration on the forehead of the face depending on the constitution were shown in the order of Taeumin, Soyangin and Soumin (F=25.481, p=.000). Multiple comparisons among Sasang Constitution Taeumin was significantly higher than Soumin and Soyangin than Soumin at the .05 level.

The measurement of hydration on the cheek of the face depending on the constitution were shown in the order of Taeumin, Soyangin and Soumin (F=23.216, p=.000). Multiple comparisons among Sasang Constitution Taeumin was significantly higher than Soumin and Soyangin than Soumin at the .05 level.

[Table 3] Evaluation of skin surface lipid according to Sasang Constitution

Unit : mg/cm2					
Measurement area	Taeumin	Soyangin	Soumin	F	p value
	Mean±SD				
forehead	150.45±60.65	109.67±50.56	94.26±66.33	5.753	.005**
cheek	147.75±75.11	95.79±69.66	72.61±75.04	6.898	.002**

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

The measurement of lipid on the forehead of the face depending on the constitution were shown in

the order of Taeumin, Soyangin and Soumin (F=5.753, p=.005). Multiple comparisons among Sasang Constitution Taeumin was significantly higher than Soumin at the .05 level.

The measurement of lipid on the cheek of the face depending on the constitution were shown in the order of Taeumin, Soyangin and Soumin (F=6.898 p=.002). Multiple comparisons among Sasang Constitution Taeumin was significantly higher than Soyangin and Taeumin than Soumin at the .05 level.

[Table 4] Evaluation of skin surface pH according to Sasang Constitution

Unit : pH					
Measurement area	Taeumin	Soyangin	Soumin	F	p value
	Mean±SD				
forehead	6.64±.80	6.36±.71	6.11±.40	5.010	.009**
cheek	6.46±1.14	6.28±.74	5.82±.61	5.070	.008**

\*\*\*p<0.001, \*\*p<0.01, \*p<0.05

The measurement of pH on the forehead of the face depending on the constitution were shown in the order of Taeumin, Soyangin and Soumin (F=5.010, p=.009). Multiple comparisons among Sasang Constitution Taeumin was significantly higher than Soumin at the .05 level.

The measurement of pH on the cheek of the face depending on the constitution were shown in the order of Taeumin, Soyangin and Soumin (F=5.070, p=.008). Multiple comparisons among Sasang Constitution Taeumin was significantly higher than Soyangin and Soyangin than Soumin at the .05 level.

#### 4. Conclusions

The purpose of this study was to investigate the characteristics of facial skin parameters (hydration, lipid and pH) on forehead and cheek according to Sasang Constitution classification.

Consequently, there was a significant difference in hydration, lipid and pH according to Sasang Constitution.

The results of this study were as follows;

1. By the classification of the constitution

according to Sasang Constitution, it was resulted that 42.7% of the classified women belonged to Soumin, whereas Taeumin(32.6%), Soyangin(22.5%), Taeyangin(2%). Therefore, Soumin is viewed as the most predominant among constitution, but Taeyangin constitution is very rare. Therefore Taeyangin was exempted from this study.

2. The measurement of hydration on the forehead ( $F=25.481$ ,  $p=.000$ ) and the cheek ( $F=23.216$ ,  $p=.000$ ) of the face depending on the constitution showed significant difference in the order of Taeumin, Soyangin and Soumin.

3. The measurement of lipid on the forehead ( $F=5.753$ ,  $p=.005$ ) and the cheek ( $F=6.898$ ,  $p=.002$ ) of the face depending on the constitution showed significant difference in the order of Taeumin, Soyangin and Soumin.

4. The measurement of pH on the forehead ( $F=5.010$ ,  $p=.009$ ) and the cheek ( $F=5.070$ ,  $p=.008$ ) of the face depending on the constitution showed significant difference in the order of Taeumin, Soyangin and Soumin.

Facial skin surface seemed to be dependent on Sasang Constitution classification in Korean. These findings indicated that Sasang Constitution classification might be a useful esthetic treatment for caring facial skin in the future. This is a basic study to find Sasang Constitution can be a major factor to care and manage skin. In conclusion, it is needed to find out an effective ways of caring facial skin individually to apply Korean Sasang Constitution to a new esthetic treatment.

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