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学位論文の題名	Age and sex are the main indicators for serum dehydroepiandrosterone-sulfate concentration (年齢と性別がデヒドロエピアンドロステロン・サルフェートの血中濃度における主要な指標である)  Nagoya Medical Journal (accepted for publication)
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## Abstract

### [Introduction]

Dehydroepiandrosterone-sulfate (DHEAS) is an adrenal steroid hormone. Decline of serum DHEAS with age has been reported many times. These findings suggest that individuals with higher serum DHEAS are “younger and healthier”. Many illnesses and deaths are due to chronic diseases, such as hypertension, diabetes, cardio-vascular diseases, and so on. These are closely related to fitness indices (e.g., body mass index, blood pressure, some blood tests). However, the relationship of serum DHEAS with conventional health indices have not been fully investigated. Therefore, to clarify the fundamental properties of serum DHEAS as a biomarker, we investigated its cross-sectional associations with age, sex, and conventional health indices.

### [Methods]

This study was conducted in Okazaki City, Japan, from 2007 to 2011. Study participants were selected from medical examinees aged 35–79 years; a total of 7,526 examinees. We measured their height, weight, waist circumference, blood pressure, respiratory function, osteo sono-assessment index. We also performed blood and urine tests and measured the serum DHEAS concentration.

### [Results]

Serum DHEAS correlates moderately with age in male (Spearman's rho: -0.32), and with age in female (Spearman's rho: -0.25). In both sexes, almost all assessment measures had a moderate correlation with age (Spearman's rho > 0.21 or < -0.23). In female, the correlation between serum albumin and age was very low (Spearman's rho -0.03). Using analysis of variance, we estimated each partial  $\eta^2$  of age (0.097 in male, 0.034 in female) and serum albumin (0.009 in female).

### [Discussion]

They are thereby consistent with already known reports. Almost all assessment measures had a moderate or strong correlation with age; therefore, these are assumed to be the confounding factors. After the assessment measures associated with age previously shown to correlate with serum DHEAS had been excluded, only serum albumin remained only in female. It is possible that serum albumin appears to have a very small effect on serum DHEAS, however, is not as influential as age and sex. In both sexes, the effect of age on serum DHEAS density was large (especially in male) and if we are restricting the discussion to conventional health indices generally measured at medical examinations, the correlation between other factors and serum DHEAS was thought to be very weak.

### [Conclusion]

Serum DHEAS might be the index independent of other factors except for age and sex. Age and sex are main indicators for serum DHEAS concentration.