

## Aging/Geriatrics

### P200

#### **Factors that affect skin aging: A cohort-based survey on twins**

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**Introduction:** Photoaging describes a phenomenon brought about by long-term sun exposure that causes inflammatory skin changes, resulting in photodamage and premature skin aging. The topic has become an issue of great importance and expense. In 2005, \$160 billion were spent on aging-reversal procedures. More importantly, the presence of photodamage is also related to the development of skin cancers, warranting investigation into the etiology and prevention of photodamage.

**Objective:** This study identifies environmental factors that correlate with skin photoaging, controlling for genetic susceptibility by using a questionnaire administered to pairs of twins at the annual Twins Days Festival in Twinsburg, Ohio.

**Methods:** The survey collected information about degree of sun exposure, sun protective behaviors, history of skin cancer, smoking and drinking habits, and body mass index from a cohort of twins. Clinicians then assigned a Fitzpatrick type and clinical photodamage score to each participant. Univariate analysis examined associations between each variable and photodamage, using the Spearman correlation coefficient and the Kruskal-Wallis test. For factors found to be significant in univariate analysis, multivariable linear regression with the forward model selection procedure was used to determine independent associations. All tests were two-sided and p-values less than 0.05 were considered significant.

**Results:** Factors found to positively predict photodamage include cigarettes smoked ( $p=0.0004$ ), skin cancer history ( $p=0.045$ ), and weight with a correlation coefficient ( $r$ ) of 0.45 ( $p=0.008$ ). Factors negatively correlated with photoaging include Fitzpatrick type with  $r=-0.47$  ( $p=0.0004$ ), and sun screen use with  $r=-0.31$  ( $p=0.007$ ).

**Conclusions:** The study of twins provides a unique opportunity to control for genetic susceptibility in order to elucidate environmental influences on skin aging. The relationships found between smoking, weight, sunscreen use, skin cancer, and photodamage in these twin pairs may help to motivate the reduction of risky behaviors.

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