

## **Pengaruh faktor genetik dan lingkungan terhadap bentuk fasial penderita sindroma down = The effect of genetical and enviromental factors to facial shape in down's syndrome patients**

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### **Abstrak**

*Down's syndrome is caused by chromosom abberation namely 21 trisomy. Skeletal and neurological disorders are found in Down's syndrome patient. Skeletal disorder may cause craniofacial growth abnormalities, where neurological disorder may cause brain growth defects which result in mental retardation, as well as neuromuscular disorder, which results in muscular hypotonia. The aim of this study was to prove that facial shape in Down's syndrome patient was not only influenced by genetic factor, but also by environmental factors such as cognitive capability, oral muscular exercises, and oral muscular tone. The population consisted of Down's syndrome children aged 14 to 18 years from sekolah Luar Biasa (Special School) in Jakarta. Samples used in the study consisted of 25 Down's syndrome patients. Clinical and cytogenetic test were conducted to ensure a diagnosis. Lateral cephalograms were made to analyze facial shape by Fourier analysis on gonion angle. Intelligence Quotient (IQ) and Social Quotient (SQ) tests, electromyography examination of the masseter and temporal muscles, oral function examination and speech therapy questionnaires to the respondents were performed. The data were analyzed using path analysis. Based on the results of the study, it could be concluded that the genetic factor is the main factor causing Down's syndrome facial shape abnormalities. The environmental factors such as oral muscular tone cognitive capability, and oral muscular exercies may also play role in Down's syndrome facial shape.*