

Contribution ID: 320

Type: **Poster Presentation**

Dynamic model predicting overweight and obesity in Korean adolescents

Monday, 9 July 2018 19:45 (15 minutes)

Obesity is the result of caloric imbalance and is mediated by genetic, behavioural, and environmental factors. Healthy lifestyle habits, including healthy eating and physical activity, can lower the risk of becoming obese and developing related diseases. The prevalence of obesity among Korean adolescents aged 13 to 18 years increased from 13.65% in 2007 to 19.3% in 2016 for boys.

We analyze trends in adolescents obesity for 6 years and estimate of adolescents obesity. We adopt the well-known SIR model structure for infectious diseases. A differential equation system predicted adolescents' obesity prevalence trends. The model considers both social environment and obesogenic environment influences on weight gain, incorporates other known parameters affecting obesity trends.

The dynamic model predicts that obesity prevalence will plateau independent of current prevention strategies. The proportion of overweight is lower in middle school than in high school, but obesity is higher in high school. The adolescents prevalence of overweight and obesity for boys will plateau by about 2025 at 6% and 27% respectively.

[1] H. Pontzer, R. Durazo-Arvizu, *et al.*, Constrained Total Energy Expenditure and Metabolic Adaptation to Physical Activity in Adult Humans, *Current Biology*, 26 (2016), 410-417.

[2] Diana M. Thomas, Marion Weederemann, *et al.*, Dynamic Model Predicting Overweight, Obesity, and Extreme Obesity Prevalence Trends, *Obesity*, Vol 22, Num. 2, (2014) pp.590-48. www.obesityjournal.org.

[3] <https://yhs.cdc.go.kr/new/pages/pds1.asp>, (2016) (accessed 2017.05.01)

Primary author: Prof. OH, Chunyoung (Chonnam National University)

Presenter: Prof. OH, Chunyoung (Chonnam National University)

Session Classification: Poster Session

Track Classification: Disease - non-infectious