Background
Childhood obesity is the most incriminated factor of type 2 diabetes in the world. In recent publications 80% of Japanese diabetic children are obese (1). Obesity among kids has been, for decades, a very serious public health problem worldwide and WHO considers childhood obesity as one of the most serious public health challenges of the 21st century. Asia pacific region countries, including Japan, have already reached alarming rates, as life style changed dramatically in this part of the world. In Japan as in many concerned countries, strategies including educational, promotional and awareness-raising activities have been established to combat obesity within kids

Aim
To estimate the recent obesity and also the underweight trends of Japanese kids aged from 5 to 17 years, by single year of age and by gender, over the last decade.

Method
We used the data from the cross-sectional annual Nationwide surveys (National Nutrition Survey, Japan, Ministry of education, culture, sports, science and technology) conducted from 2007 to 2016 for all Japanese kids. We compared trajectories of obesity prevalence, with the data on sex and age groups. We also analyzed energy and macronutrients intakes of Japanese kids using Ministry of Health, Labor and Welfare-Japan annual data, from 2007 to 2014.

The weight quotient was calculated from the standard weight/sex, age and height. Kids with weight quotient of 20 % or more are considered obese kids, those with minus 20% or less are slimming tendency kids.

Results
Gender: From 2007 to 2016, Boys obesity was higher than Girls obesity for the over 6 YO Kids. Both Boys and Girls obesity trends had 2 peaks of prevalence at (11-13 YO) and then at (15-16 YO). These peaks were more pronounced within Boys.

Obesity trend: During the last decade, Kids obesity decreased overall in both sexes. there were 2 phases: from 2007 to 2012, kids obesity decreased considerably in both sex and all year of age, then the decline became more modest till 2016.

Slimming : After 12 YO, Girls and Boys underweight prevalence increased in both sex, Girls slimming is higher than boys

We could also notice that there are high slimming prevalence for some age groups: 10 YO to 12 YO group and 15 YO to 16 YO group for boys and only 11 YO to 14 YO group for girls.

Generational weight analysis (20 Years thereafter)
-Generation 1972-1994 ; 1994 kids weight per year age was dramatically high compared to 1972 (mostly after the age of 9 for Boys and in the 9 to 14 YO group for Girls)

-Next generation, 1994-2016 : kids weight per year age in 2016 seems roughly the same as in 1994.

Macronutrients:
-The macronutrients analyzes couldn’t show an evident association between obesity trends and foods intake.

Discussion: In opposition to some other countries (2), Japanese kids’ obesity has been decreasing since 2007. At that date, Japanese government started the “Standard Health Checkup and Counseling Guidance Program” part of the national ‘Health Japan 21’ program to decrease the number of early deaths of people, promote healthy life and improve people’s life quality by, among other objectives, focusing on Nutrition, life style and metabolic syndrome screening (3).
In our study, 11-13 and 15-16 Years Old categories kids have higher obesity level. This may explain the high incidence rate of type 2 diabetes in children among junior high school students since 1974. We should focus on the 10-13 YO and 15-16 YO kids as they show a weight change tendency by giving better diet advice and life style education at schools. We didn’t find an observed association with foods intake using Health ministry data. We need further investigation to deeply estimate energy intake, life style and physical activity by year of age to know whether there is any possible relation.