Adequate levels of physical activity are part of a healthy lifestyle. How much do active games contribute to all day physical activity in Dutch adolescents?

**INTRODUCTION**
For children and adolescents, the physical activity guideline recommends at least 60 minutes of moderate-to-vigorous physical activity every day. However, many adolescents are not physically active enough and they spend a lot of their time on sedentary activities (i.e. sitting or lying). A popular sedentary activity among adolescents is playing video games. A new generation of video games that require body movements to play them, so-called “active games”, could serve as a tool to increase physical activity in adolescents.

**OBJECTIVES**
The current study aimed to increase our understanding of 1) the demographic characteristics of adolescents who play active games regularly (≥ 1 hour per week) and non-regularly (1 hour per week), 2) time spent on active games, 3) the contribution of active games to daily physical activity and 4) the type of activities being replaced by active gaming.

**METHODS**
A cross-sectional survey was conducted in a Dutch internet panel, questioning adolescents in conjunction with one of their parents. A random sample of 320 households (with stratification on gender of the parent and the adolescent, the age of the adolescent and the region of the household) was selected that owned a console or application for active video games and that had a child aged 12 through 16 years. 201 child-parent couples (63% response) completed the internet survey with questions about demographics, physical activity and sedentary behavior, and gaming behavior. The questionnaire also contained questions designed to assess whether and how active gaming replaces other activities.

Besides descriptive analyses, independent t-test, Pearson’s chi-square and Mann-Whitney test (when data was not normally distributed) were used for comparisons between regular and non-regular active gamers.

**RESULTS**
Most adolescents (84%) said they had had an active game for one year or more and the most reported active game console that was present in the household was the Nintendo Wii. Eleven percent (n=22) of the adolescents with an active game in their household never used the game. These 22 adolescents were excluded from analysis, which resulted in a total sample of 179 active gaming adolescents (active gamers), with one of their parents.

**Demographics**
There were no significant differences in gender, educational level of adolescent and parent, ethnicity and sedentary behavior between regular (n=65) and non-regular active gamers (n=114). The mean age was significantly (p<0.05) lower in the regular active gamers group (13.5 ± 1.3 years) compared to the non-regular active gamers (14.1± 1.3 years).

**Time spend on active gaming**
Most active gamers spent an average of 80 (+-136) minutes a week playing active games. Most adolescents played less frequently than once a week and the most reported duration was 30-60 minutes per day (Figure 1 and 2).

**Contribution of active games to daily physical activity**
The largest contribution to total physical activity came from ‘transport’ (39%) (Figure 3). Active gaming contributed 13% to total physical activity which is close to the contribution from sport outside a club (like playing soccer on the street) (13 %) and physical activity classes at school (18%).

**Type of activities being replaced by active gaming**
According to the adolescents, sedentary screen time like TV viewing, internet and non-active gaming were the main activities that had been replaced, and that would be replaced, by active gaming (Figure 4). The parents agreed with the adolescents about this (Figure 5). About three-quarters of the adolescents (74-75%) said that the activity that was being replaced, or they thought they would be replaced, by active game playing was less intensive than active gaming. Again most parents (73-78%) concurred.

**CONCLUSIONS**
The results of this study confirm the idea that active gaming may contribute to an active lifestyle in adolescents, primarily because it contributes substantially to time spent on physical activity. Secondly, active gamers indicated to spend time on active games which they would otherwise have spent on less active activities.