LONGITUDINAL ASSOCIATION OF TV VIEWING AND FATTY LIVER. THE CARDIOVASCULAR RISK IN YOUNG FINNS STUDY.

Helajärvi H1, Pahkala K1,2, Heinonen OJ1, Olkonen M2, Tammelin T3, Viikari J4, Raitakari OT2,5
1Paavo Nurmi Centre, Dpts of Physiology & Health and Physical Activity, University of Turku, Turku, Finland; 2Research Centre of Applied and Preventive Cardiovascular Medicine, University of Turku, Turku, Finland; 3LIKES Research Center for Sport and Health Sciences, Jyväskylä, Finland; 4Division of Medicine and 5Department of Clinical Physiology and Nuclear Medicine, Turku University Hospital, Turku, Finland
E-mail: harri.helajarvi@utu.fi

Objectives

Sedentary behaviour has been associated with increased risk of obesity and cardiometabolic diseases, but the underlying pathogenic mechanisms are unknown. Hepatic lipid metabolism disturbances may play a role. We studied the longitudinal association of TV viewing time with fatty liver evaluated with the Fatty Liver Index (FLI).

Methods

1367 eligible subjects (748 women, 619 men aged 34-49 y) were drawn from the population-based Cardiovascular Risk in Young Finns study. FLI was calculated in 2001 and 2011 from waist circumference, BMI, fasting triglycerides and serum Gamma-Glutamyltransferase. BMI and waist circumference were measured and TV viewing time was self-reported in 2001, 2007, and 2011. Changes in FLI between 2001 and 2011 were studied in groups with constantly low (<1h/d), moderate (1-3h/d), or high (>3h/d) TV time, and in groups with >1 hour in-/decrease in daily TV time between 2001 and 2011. Associations were studied with Tukey-Kramer linear regression adjusting for self-reported physical activity (leisure-time and commuting to workplace), occupational physical strain, sleep duration, socioeconomic status, smoking, diet composition, energy intake and alcohol use in 2007 prior to the last follow-up.

Results

In 2001 FLI was similar in all groups (p>0.05), but in 2011 constantly high TV time was associated with a higher FLI regardless of adjustments made for lifestyle. FLI increase in the high TV time group was almost 3-fold in comparison to the low TV time group (p <0.02). In addition, FLI increase was lower in the group that decreased their TV time when compared to the constantly high TV time group (P<0.04). Only an adjustment for BMI changed all associations to non-significant.

Conclusions

High TV viewing time and obesity are associated with fatty liver. Lipid deposition in liver may be one mechanism linking sedentary behaviour with increased risk of non-communicable diseases.