The recognition of the importance of regular physical activity for physical fitness and optimal health has led to an increased interest in the study of different aspects of physical activity. The purpose of this study was to investigate secular trend, tracking and familial resemblance in sports participation using data from the Leuven Longitudinal Study on Lifestyle, Fitness and Health (LLSLFH) 1969-2004.

In the LLSLFH 154 Flemish males were measured at annual intervals between 12 and 18 years and again at 30, 35, 40 and 45-49 years and 138 females were measured once between 14 and 18 years and again at 37-43 years. In the most recent phase of the study (2002-2004) also spouses and offspring of the longitudinally followed males and females were included. Data on sports participation were collected by means of a standardized questionnaire with retrospective approach or using the Flemish Physical Activity Computerized Questionnaire.

Intra-familial secular trend was investigated between fathers at adolescent age in 1969-1974 and their adolescent sons in 2002-2004 and between mothers at adolescent age in 1979-1980 and their adolescent daughters in 2002-2004. No significant difference was found between the adolescent sports participation of fathers (6.4 ± 4.2 hours/week) and sons (6.5 ± 4.3 h/wk) nor between that of mothers (4.4 ± 2.5 h/wk) and daughters (5.3 ± 3.3 h/wk).

Tracking was investigated from adolescence (males: 16.7 ± 0.6 years; females: 16.6 ± 1.1 years) to adulthood (males: 47.0 ± 0.7 years; females: 40.5 ± 1.1 years). In both sexes a non-significant inter-age correlation of 0.13 was found. 57.9% of the active adolescent males (sports participation ≥ 3 h/wk; 72.8%) and 54.4% of the active adolescent females (58.5%) remained active during adulthood (sports participation ≥ 1.5 h/wk) while 42.1% of these males and 45.6% of these females became less active adults (sports participation < 1.5 h/wk). 47.5% of the less active adolescent males (sports participation < 3 h/wk; 27.2%) and 62.5% of the less active adolescent females (41.5%) remained less active during adulthood while 52.5% of these males and 37.5% of these females became active adults. The odds of belonging to the less active group in adulthood was 1.2 (95% CI: 0.6 – 2.6) times greater in less active adolescent males and 2.0 (95% CI: 0.9 – 4.3) times greater in less active adolescent females compared to active adolescent males and females respectively.

Familial resemblance was investigated by calculating correlations between family members of the most recent phase of the LLSLFH (2002-2004). The following correlations were found: father-mother: 0.29 (p < 0.001); father-son: 0.15 (p < 0.05); mother-daughter: -0.01 (NS); father-daughter: 0.01 (NS); mother-son: 0.10 (NS); brother-brother: 0.05 (NS); sister-sister: 0.33 (p < 0.05) and brother-sister: 0.29 (p < 0.01). In a subgroup of the parent-offspring pairs the correlation between adolescent chronological age-matched father-son (r = 0.0) and mother-daughter (r = 0.0) pairs did not differ significantly from that of date-of-exam matched (adult parent-adolescent offspring) father-son (r = -0.02) or mother-daughter (r = -0.09) pairs respectively.

From this study it can be concluded that there is no secular trend, low tracking and very low familial resemblance for sports participation in the Flemish population.

Keywords: Sports Participation, Epidemiology, Tracking