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BOOK OF ABSTRACTS

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CHANGE IN ANTHROPOMETRIC DATA OF 9-YEAR-OLD SCHOOLCHILDREN BETWEEN 1970 AND 2017

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1:UNIVERSITY OF LEIPZIG, 2:GERMAN UNIVERSITY OF HEALTH AND SPORTS, 3:FORMER DEUTSCHE HOCHSCHULE FÜR KÖRPERKULTUR, 4:DATENSERVICE LUDWIG

INTRODUCTION: In 1968, a project for the physical development of school youth in the GDR was started (Crasselt et al., 1985). As a result of this study, extensive data were generated over 10 years with a panel design of 3126 pupils with 785 variables of anthropometric, sport, school and social status. At present, several projects for the physical development of schoolchildren are being realized in Germany. In Berlin Zinner et al. (2015) organized the project "Berlin has Talent". From both investigations, the question was deduced which differences exist in the physical performance and in the anthropometric data within the period of more than 40 years. In the present sub-study we focus on anthropometric data of schoolchildren at the age of 9 years.

METHODS: In the study by Crasselt et al. (1985) we analysed 3046 schoolchildren ($M = 8.77y$, $SD = \pm 0.29$) including 1421 boys and 1525 girls as well as with the data up-date of 2017 in the study by Zinner et al. (2015) 3686 schoolchildren ($M = 8.38y$, $SD = \pm 0.65$) including 1847 boys and 1839 girls. The anthropometric variables body mass, body height, sitting height as well as the month age and BMI (Mir-

wald et al., 2002) were used for further statistical analyses with IBM SPSS Statistics, Version 25. In a first step we calculated PCA's, separated for boys and girls in both groups to analyse the similarity of data structure. In a second step a MANOVA with the anthropometric data was calculated.

RESULTS: The PCAs factor analyses showed for all groups similar two-factorial models, with a total of variance explanation > 78 %. The MANOVA with 3 dependent variables (body height, body mass and BMI) and 2 fixed factors (group and sex) yielded following results: Using Pillais trace, there was a significant effect of group $V = 0.06$,

$F(4, 6725) = 97.29$, $p = 0.001$, partial $\eta^2 = 0.055$. The multivariate test for sex was also significant but with a very small effect (partial $\eta^2 = 0.01$). However, separate univariate ANOVAs on the outcome variables revealed significant results between the both groups for body height with $F(3, 6728) = 139.47$, $p = 0.001$, partial $\eta^2 = 0.02$, body mass $F(3, 6728) = 381.15$, $p = 0.001$, partial $\eta^2 = 0.054$ and BMI $F(3, 6728) = 340.34$, $p = 0.001$, partial $\eta^2 = 0.048$.

CONCLUSION: The most important result of the study is the increase of body mass from 28.96 kg in 1970 to 32.12 kg in 2017 in both sexes as well as the associated increase of BMI. The difference of body height is significant but has only little meaning. Our findings support the general level of knowledge of increasing in body mass in modern industrialized countries with a special view of schoolchildren at the age of 9 years. For the results of the investigations, however, there are also limitations in the generalization. The study by Crasselt et al. (1985) was representative of the territory of the GDR, the study of Zinner et al. (2015) is limited to the territory of Berlin. Further investigations are needed to generalize the results.

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INCREASING PHYSICAL ACTIVITY WITH HEALTH APPS FOR FAMILIES: A QUALITATIVE CONTENT ANALYSIS

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INTRODUCTION: Due to precarious life situations and a lack of support, many children are prone to increasing physical health risks (Allender, Cowburn, & Foster, 2006). Even if the different actors in a family tend to clash because of their divergent personalities, a stable family environment, which fulfils its role model function, can be a reducing factor in this respect (Rhee, 2008). Since health apps, at least in individual situations, can be a motivation to improve physical health (Ernsting & Dombrowski, 2017), this study examined whether and how health apps are suitable in a context of family health promotion to increase physical activity.

METHODS: In order to assess the needs of all family members in terms of health apps and their implicit personality structure, both parents and children were interviewed. For the parents ($n=40$, $\bar{M} = 15$, $SD = 25$), a guided interview was used, which was later evaluated using MAXQDA software and qualitative content analysis. Depending on their age group, the children ($n=120$, $\bar{M} = 60$, $SD = 60$) were divided into three focus groups (10-11 years, 12-13 years and 14-15 years) and asked various questions about health apps in a methodological and didactical prepared learning environment.

RESULTS: Including all participants and their diverse personality structures, movement and nutrition were considered as the two essential content areas for health apps. More than 60% of parents would integrate a health app into their family's life even though the individual usage rate of health apps is 35%. The focus groups showed that children between the age of ten to thirteen associated health with playful elements and like to be active with their parents, whereas in adolescents over the age of thirteen, self-expression becomes increasingly important and the time spent with parents is valued less.

CONCLUSION: The results indicate that an intra-familial use of health apps is a possible solution for reconciling family's interests in exercise and nutrition. With an enhanced support of the family, especially preadolescent children could be stimulated to long-term behavioural changes in terms of physical activity increase. Further research will show how the motivational approach in health apps must be implemented so that the divergent personalities within a family echo themselves in it.

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Oral presentations

OP-SH07 Psychology: Stress and anxiety

A LONGITUDINAL ANALYSIS OF THE RELATIONSHIP BETWEEN MENTAL FATIGUE, FATIGUE AND TIREDNESS IN ELITE AND INTERNATIONAL NETBALL PLAYERS.

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INTRODUCTION: Fatigue is a multi-faceted phenomenon; in addition to fatigue (F), mental fatigue (MF) has been shown to negatively influence aspects of physical and team sport performance (1). Research into MF and sports performance to date has been limited to acute experiments in laboratory-based settings; whether MF and PF can be identified as separate entities over extended periods of training and competition with elite athletes is yet to be examined. Given that outcomes in elite sport are often determined by very small margins,