

Physical Fitness: Positive 6-Year Trend

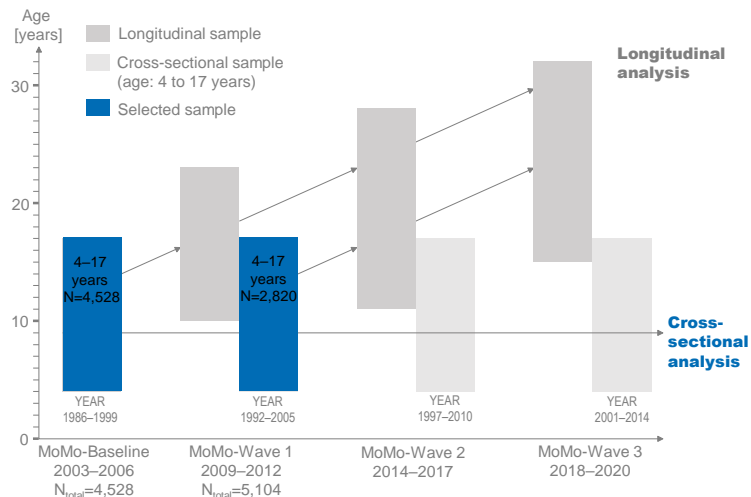


FACT SHEET

Introduction and Methods

Comprehensive reviews of the literature reveal that motor performance of children and adolescents has decreased between 1975 and 2006 [1, 2]. In the past most of the available data came from ad-hoc samples with non-standardized methods. Within the framework of the MoMo-Study it is possible for the first time to directly compare the motor performance of 2 representative cohorts at the ages of 4–17 years in Germany. Within this analysis changes of 7 test items of the MoMo-test profile are reported to assess the physical fitness comprehensively. Altogether, results from 52 comparisons of mean values are presented in table 1 (segmented in sex and 4 age groups). The significance was examined by calculating the confidence intervals (95-% CI) for complex samples. The assessment of the relevance was estimated by calculating the effect sizes by Cohen's d [3].

Study design: 6-year cohort study



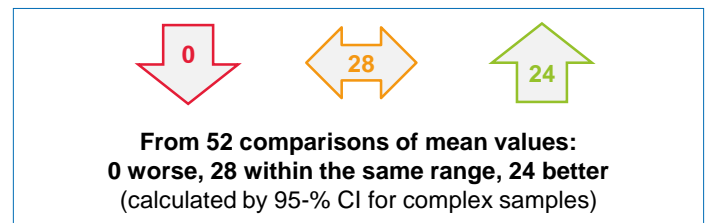
Results and Discussion

Test items	Standing long jump change (cm)	Push-ups change (number in 40 seconds)	PWC 170 change (watt)	Jumping sideways change (jumps in 15 seconds)	Balancing backwards change (steps)	Inserting pins change (seconds)	Stand and reach change (cm bottom of the foot level)	
4–5 years	m	-0.2 [-0.01]	Not measured under 6 years of age	2.1* [0.54]	2.9 [0.35]	-3.2 [-0.21]	0.6 [0.10]	
	f	2.8 [0.15]	Not measured under 6 years of age	2.5* [0.67]	3.3* [0.38]	-1.8 [-0.14]	3.2 [0.20]	
6–10 years	m	1.8 [0.08]	1.3* [0.36]	6.0* [0.30]	4.7* [0.69]	2.4* [0.23]	-1.4 [-0.16]	2.1* [0.32]
	f	5.9* [0.31]	1.4* [0.40]	5.7* [0.33]	4.9* [0.72]	3.7* [0.37]	-1.6 [-0.20]	3.7* [0.38]
11–13 years	m	-3.9 [0.17]	0.4 [0.10]	2.1 [0.07]	2.6* [0.40]	3.0* [0.34]	-2.2* [-0.26]	-0.3 [-0.04]
	f	-0.8 [0.04]	0.6 [0.17]	1.6 [0.06]	0.9 [0.16]	4.7* [0.55]	-0.4 [0.08]	4.7* [0.33]
14–17 years	m	-1.8 [-0.07]	0.8 [0.21]	-4.3 [-0.11]	3.1* [0.48]	3.9* [0.43]	-1.2* [-0.26]	-0.3 [-0.04]
	f	0.1 [<0.01]	0.2 [0.06]	6.4 [-0.24]	1.5 [0.24]	3.2* [0.38]	-1.3* [-0.31]	3.2 [0.22]

*= significant positive changes from Baseline to Wave 1 based on 95-% confidence intervals for complex samples

Table 1: Summary MoMo-Baseline compared with MoMo-Wave 1 (absolute mean difference in the measurement unit of the test item, significance by 95-% CI for complex samples and effect sizes estimated by Cohen's d).

- No decrease of physical fitness over the period of 6 years
- Physical fitness values remain stable and partially improve for male and female participants (small to medium effect sizes)
- Improvements especially for children aged 6–10 years



➔ The results indicate that the activities of the last years aiming at elevating physical fitness levels in Germany may have started to make an impact and should be expanded in all relevant settings, especially in secondary schools.

[1] Bös, K., Oberger, J., Lämmle, L., Opper, E., Romahn, N., Tittlbach, S., Wagner, M., Woll, A. & Worth, A. (2008). Motorische Leistungsfähigkeit von Kindern. In W. Schmidt (Hrsg.), *Zweiter Deutscher Kinder- und Jugendsporbericht. Schwerpunkt: Kindheit* [Second German Report about Sports for children and youth. Focus: Childhood] (136–157). Schorndorf: Hofmann.*

[2] Tomkinson, G. R., & Olds, T. S. (2007). *Secular changes in pediatric aerobic fitness test performance: the global picture* (Vol. 50, 46–66). Karger Publishers.

[3] Albrecht, C., Hanssen-Doose, A. (shared first authorship), Bös, K., Schlenker, L., Schmidt, S., Wagner, M., Mewes, N. & Worth, A. (2016). Motorische Leistungsfähigkeit von Kindern und Jugendlichen in Deutschland. 6-Jahres-Kohortenstudie im Rahmen des Motorik-Moduls [Motor performance of children and adolescents in Germany. A 6-year cohort study within the framework of the "Motorik-Modul" (MoMo)]. *Sportwissenschaft*, 46 (4), 294–304.*

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