

Zeitdruck als situativem Einfluss auf Entscheidungsprozesse geprüft, ein Einfluss, der im Fußball relevant ist, experimentell allerdings kaum Berücksichtigung findet (Belling, Suss, & Ward, 2015).

97 Nachwuchsspieler eines Nachwuchsleistungszentrums absolvierten einen Optionsgenerierungs- und Entscheidungstest unter Verwendung eines zeitlichen Okklusions-Paradigmas. Dazu wurden auf Touchpads Videoszenen von Fußballspielen präsentiert, die stoppten, kurz bevor der Spieler in Ballbesitz eine Entscheidung traf. Die Spieler wurden gebeten, mögliche Optionen einzuzichnen und anschließend die beste Option auszuwählen. In einem Innersubjekt-Design wurde Zeitdruck manipuliert, d.h. die Spieler hatten entweder 7.5 Sekunden (Zeitdruck) oder 30 Sekunden (kein Zeitdruck), um Optionen zu generieren. In Anlehnung an die Take-The-First Heuristik (Johnson & Raab, 2003; Raab & Johnson, 2007) wurden die folgenden Variablen berücksichtigt: Anzahl an generierten Optionen, relative Häufigkeit, mit der die erste Option als beste Option ausgewählt wurde, und Qualität der besten Option. Die Expertise wurde mittels Trainereinschätzungen per Fragebogen in einem binären Format erhoben, indem sie die Spieler als Top-Talent (1' ja) bewerteten oder nicht (0' nein).

Die logistische Regression ergab, dass nur die relative Häufigkeit, mit der die erste als beste Option ausgewählt wurde, als Entscheidungsleistung die Top-Talent-Ratings vorhersagte, nicht aber die Anzahl an generierten Optionen oder die Qualität der besten Option. Dieser Zusammenhang war deskriptiv stärker, wenn Entscheidungen unter Zeitdruck getroffen wurden als ohne Zeitdruck.

Die Annahme, dass kognitive Entscheidungsprozesse eine zentrale Rolle für die Entwicklung von Fußballexpertise spielen (Baker et al., 2003; Williams & Ward, 2007), wird durch den Befund gestützt, dass die relative Häufigkeit, mit der die erste Option als beste ausgewählt wurde, Top-Talent-Ratings vorhersagt. Die deskriptiven Unterschiede zwischen den Zeitdruckbedingungen deuten darauf hin, dass Zeitdruck die Entscheidungen junger Fußballspieler beeinflusst und weiter untersucht werden sollte. Obwohl insgesamt weniger Zusammenhänge gefunden wurden als erwartet, zeigt die vorliegende Studie die Relevanz kognitiver Entscheidungsprozesse junger Fußballnachwuchsspieler für die Talentidentifikation auf.

The relationship between motor competence and health-related fitness from early childhood to adulthood: a meta-analysis of reviews

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Motor competence and health-related fitness are important factors for healthy developmental trajectories and physically active children (Stodden et al., 2008). Here, health-related fitness mediates the relationship between motor competence and physical activity. However, it is hypothesized that this relationship changes across age (e.g., Burton & Rodgeron, 2001). So far only single studies investigate this question. A meta-analytic integration of these studies could provide a better understanding on this relationship and the hypothesized change across age.

A total of 60 studies analyzing the relationship between motor competence and fitness were identified between 1990 and 2016 following PRISMA guideline. Thirteen studies comprised 27 samples and 73 data points. Overall 15,101 participants aged 4.5 to 20.4 years ($M_{age} = 12.94$, $SD = 4.84$) were examined. A random effects model was conducted for the meta-analytic integration with age as a moderator using R (R Core Team, 2017).

The association between MC and PF was $r = .48$ (CI95: .38-.57, $p < .001$) after correction for multiple effects for dependent samples and small-sample correction. Further, age was no significant moderator of the effect size, but was positive from a descriptive point of view.

This systematic meta-analytical integration of relations between MC and PF provides evidence for a medium to strong relationship, which does not substantially change from early childhood to adolescence. Hence, the relation is stronger and more stable than hypothesized in systematic reviews (i.e., Cattuzzo et al., 2016; Robinson et al., 2016).

The Brainfit study – motor abilities and executive functions in childhood cancer survivors

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Survival rates for childhood cancer have increased up to over 80% due to both, advances in diagnosis and improved treatment. However, childhood cancer survivors bear a high risk for a variety of chronic health conditions: for example, they frequently suffer from late effects like impaired motor abilities or cognitive deficits i.e. in executive functions. Although in the healthy population, motor abilities have been linked to executive functions, to date no study investigated this relationship in childhood cancer survivors. Therefore, the aim of this study was to examine late effects in childhood cancer survivors focusing on the link between motor abilities and executive functions.

In total, 81 children and adolescents (32 childhood cancer survivors, 49 healthy controls) between 7-16 years of age ($M = 11.14$; $SD = 2.35$) were included in this study. Motor abilities were assessed using the German Motor Performance Test (aerobic fitness, strength, coordination); core executive functions were assessed using the Stroop and the Corsi Block task (inhibition, shifting, updating). Raw scores were transformed to age-adjusted standardized scores. Subsequently, variables assessing executive functions and motor abilities were transformed into two separate composite scores.

Background variables with respect to age, gender, socioeconomic status and IQ did not differ between both groups. Independent t-tests (one-tailed) revealed significantly worse coordination ($p = .002$, $d = .63$), aerobic fitness ($p = .003$, $d = .75$) and executive functions ($p = .012$, $d = .61$) in childhood cancer survivors than controls. When analyzing the contribution of the distinct motor abilities in each group separately using a multiple regression analysis, in healthy controls no significant predictors of executive functions could be found ($ps > .05$). In childhood cancer survivors however, coordination ($\beta = .42$, $p = .001$) significantly predicted executive functions ($R^2 = .44$, $F(3, 27) = 7.07$, $p = .001$).

Results suggest that late effects in motor abilities and executive functions are evident. In addition, motor abilities and executive functions are interrelated in childhood cancer survivors but not in controls. This indicates that interventions targeting motor coordination can have the power to contribute to the rehabilitation of cognitive late effects, in particular executive functions in childhood cancer survivors.

AK 7: Kognition I

Zeit: Donnerstag, 10.05.2018: 15:00 - 16:20 · Ort: Seminarraum 63
 Chair der Sitzung: Uirassu Borges, Deutsche Sporthochschule Köln

Linking gaze behavior and color effects in sports

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Over the last decades, research has examined the influence of colors on a wide array of factors, ranging from psychology, and behavior, all the way to physiology, culminating in the development of the color-in-context-theory by Elliott and Maier (2012). When observing the domain of sports, research has shown the presence of color in a wide variety of sport contexts, e.g., for soccer penalties (Greenlees, et al., 2013). However, contrary to the color-in-context theory, these studies often focus solely on psychological and performance parameters and do not investigate potential mechanisms, such as changes in (visual) behavior or (physical) performance. Based on the soccer penalty setting of Greenlees et al. (2008), this study aimed at examining the effects of colors on gaze behavior and physical performance.

Based on an a priori power analysis, with an expected Cohen's f of .15, sample size was set to 30 participants. Participants performed a rating task while wearing an eye tracking system that measured the duration per fixation, total duration of fixations and the total number of fixations. During this task, participants had to rate 40 pairs of soccer goalkeepers, displayed side-by-side in differing colors (red, blue, yellow, green, and grey), individually on five criteria (e.g., aggression, speed). In addition, the participants had to perform two maximum wall-sit tasks against a video opponent, displayed wearing either a red or a blue jersey in counterbalanced order. Finally, the participants reported their expected wall-sit performance before initiating the task.

Results showed no significant color-effect for gaze behavior, $F(4, 116) = 0.65$, $p = .63$, partial $\eta^2 = .02$, and maximum wall-sit performance, $t(29) = -1.70$, $p = .10$, Cohen's $d = 0.31$, $BF_{01} = 1.86$, $BF_{10} = 0.54$. Furthermore, no differences were observed for either the expected wall-sit performance, $t(29) = 1.12$, $p = .27$, $r = .45$, Cohen's $d = 0.20$, $BF_{01} = 3.91$, $BF_{10} = 0.26$, or the rated criteria, $F(1.95, 56.46; GG) = 1.77$, $p = .18$, partial $\eta^2 = .06$. These findings indicate that colors do not appear to influence gaze behavior. In addition, this study (using an distinct task) was not able to replicate the effects of colors on physiological performance. These results show that more research is required to gain insight into the actual underlining mechanisms of colors-effects.