The effect of a 6 week object control skill based intervention on actual and perceived fundamental movement skills in children in early and middle childhood.

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Fundamental movement skills (FMS) are an important predictor of children's physical activity, but object control skills may be more important compared to locomotor skills for engaging in health-enhancing physical activity (Robinson, et al., 2017, *Medicine and Science in Sports and Exercise*, 49, 2234-2239). Few studies have trialled object control based interventions in children. Fewer still have examined if there are differential effects of such interventions on the FMS of children in different stages of childhood. This study examined this issue. Using a quasi-randomised design and following institutional ethics approval and parental informed consent, 66 children in early childhood (EC, ages 6-7) and 58 children in middle childhood (MC, ages 10-11) undertook either a, once weekly object control skill intervention over 6 weeks in lieu of statutory PE (INT, n = 63) or acted as controls (CON, n = 61) undertaking statutory PE only. The intervention was taken from the Badminton World Federation (BWF) 'Shuttle Time' programme and focused on development of FMS through object control skills (BWF, 2011, *Shuttle Time*, BWF, Malaysia). Pre and post intervention, video analysis of five skills (run, jump, catch, throw, strike) using the Test of

Gross Motor Development-2 (Ulrich, 20000, *Test of Gross Motor Development-2*, Pro-Ed, Texas, USA) was used to assess actual FMS. Children's perceived FMS competency was determined using the Pictorial Scale of Perceived Movement Skill Competence (PMSC; Barnett, et al, 2015, *Journal of Science and Medicine in Sport*, 18, 98-102). Data were analysed using repeated measures ANOVAS with pre post scores for FMS or perceived FMS as within-subjects variables and sex, group (INT vs CON) and childhood stage (EC vs MC) as between-subjects variables. For actual FMS there was a significant pre-post X group X childhood stage interaction (P = .001). Bonferroni post-hoc tests identified that FMS increased significantly for INT and CON groups in EC and MC (all P = .01). However, FMS post intervention was only significantly improved in the INT group in EC (P = .0001). Boys also had significantly better FMS (P = .0001) irrespective of group, childhood stage or time (pre-post). For perceived FMS there was a significant pre-post X group interaction (P = .0001) where perceived FMS significantly increased for INT (P = .0001), but not for CON (P = .550), irrespective of childhood stage. Object control skill based interventions may therefore be most efficacious in enhancing actual and perceived FMS when undertaken in early childhood.