Objective | To determine the nature of cognitive function, frequency and severity of cognitive deficit, in 10 to 15-year-old extremely preterm (EPT) children born at 2 tertiary care centers in Sweden adhering to a policy of universal resuscitation of all infants born alive.

Methods | The outcomes of 121 surviving EPT children, born 1992–1998, were compared to a control group of 100 term children. Children were assessed with WISC-III at 9–16 years of age. Relationship of perinatal risk factors (PNRF) with the outcomes was examined with multivariate regression analyses (MRA).

Results | The EPT group had a mean IQ of 80 (controls 103). 29% of the EPT children had an IQ below 70 (controls 3.4%), of which 9% were under IQ 55 (controls 0). Another 30% of EPT children had IQ within the mildly delayed range, 70–84 (controls 12.6%). The pre-term group has a greater variance between cognitive domains, with the language skills as relative strength and spatial thinking as pronounced weakness. MRA revealed that only gestational age was inversely related to FSIQ (B 7.1, P < 0.02) and Performance IQ (B 9.8, P < 0.001).

Conclusion | Cognitive dysfunctions remain high in EPT children. These numbers are similar to those from centres with less active perinatal care policies. Very few have severe cognitive impairment that curtail their activities in daily life.

1229 COMPUTERIZED WORKING MEMORY TRAINING IS EFFECTIVE IN PRETERM BORN CHILDREN AT PRESCHOOL AGE

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Background and Aims | Working memory (WM) is defined as the skill to retain and manipulate information “on-line” over short periods of time. Deficits in WM are frequently reported in preterm children and are associated with cognitive, behavioural and academic problems. We wanted to evaluate if a software-based computer program would improve WM, attention and behaviour in VLBW children at preschool age.

Methods | This prospective study included 20 preterm children. Mean birth weight 1099g(SD 311), mean gestational age 29 weeks(SE 2.8). At age 5–6, the children trained with the Cogmed JM computer program for 10–15 minutes each day, 5 days a week for 5 weeks. The children were assessed before and 4 weeks after training. Effect on trained WM tasks were assessed by improvement measures included in the computer program. Non-trained WM and generalization effects were assessed by neuropsychological (NEPSY) tests. Parental questionnaires regarding ADHD symptoms were performed before and after completed training.

Results | The children improved on trained WM tasks (Start-Index: mean 42.1, SD 6.5, Max-Index 69.6; SD 5.7, p<0.001). The group also improved on non-trained WM tasks and showed a generalization effect on auditory attention, phonological awareness and visual and verbal memory. A Stepped-Wedge-Design showed that improvements in test results after training were not due to test-retest effects. There was a trend towards significantly reduced ADHD scores after training.

Conclusion | Computerized WM training in VLBW pre-schoolers have positive effects on trained and non-trained WM tasks as well as generalizing effect on verbal and visual learning and memory functions.