Erst Forschung und dann Therapie? Wie Verlaufsforschung über die Zielgruppen und Grenzen therapeutischer Interventionen informieren kann

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Overview

1. Der Phaenotyp
2. Kognitiv
3. Selbst-Regulation
4. Verhalten und Emotionen
5. Wo, wer und wie intervenieren

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Phenotype

phenotype is any ***observable characteristic*** or **trait** of an **organism:**

such as its morphology, **development**, **behaviour**, and **products of behaviour** (e.g. school success, income etc.)

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Behavioural Phenotype

- **cognitive development (for example, intelligence, memory, language)**
- **behavioural and emotional status**
- **social functioning—that is, the ability to form and maintain social relationships**
- **Results of Behaviour: school adaptation, integration into society and employment**

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Phenotyp vs Prevalenz vs individuelle Kinder

- **Das Phaenotyp Muster betrifft die Population der Fruehgeborenen und nicht individuelle Kinder**
- **Die Falsche ist mehr als halbvoll (Praevalenz adaptiven Verhaltens)**

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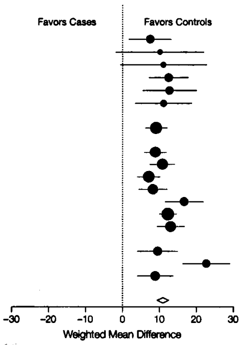
General Cognitive Development and Prematurity

Figure 1. Random-Effects Meta-analysis Comparing Cognitive Test Scores Between Cases and Controls

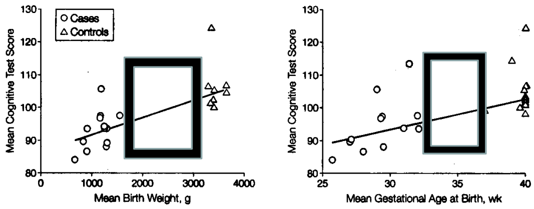
Source	Weighted Mean Difference (95% CI)
Lloyd et al,[23] 1988	7.40 (1.55 to 13.25)
Portnoy et al,[24] 1988	10.00 (−2.07 to 22.07)
McDonald et al,[25] 1989	11.00 (−0.91 to 22.91)
Smith and Knight-Jones,[26] 1990	12.40 (6.90 to 17.90)
Teplin et al,[27] 1991	12.70 (5.24 to 20.16)
Sommerfelt et al,[6] 1993	11.00 (3.26 to 18.74)
Levy-Shiff et al,[28] 1994	9.00 (6.03 to 11.97)
Hall et al,[29] 1995	
Study 1	8.80 (5.74 to 11.86)
Study 2	10.70 (7.24 to 14.16)
Sommerfelt et al,[30] 1995	7.00 (3.86 to 10.14)
Botting et al,[31] 1998	8.10 (4.18 to 12.02)
Stjernqvist and Svenningsen,[32] 1999	16.70 (11.36 to 22.04)
Wolke and Meyer,[33] 1999	12.20 (9.80 to 14.60)
Saigal et al,[34] 2000	13.00 (9.19 to 16.81)
Taylor et al,[35] 2000	
Study 1	9.40 (3.88 to 14.92)
Study 2	22.70 (16.31 to 29.09)
Rickards et al,[36] 2001	8.80 (3.87 to 13.73)
Overall	10.85 (9.23 to 12.47)



Bhutta et al., JAMA, 2002, 288: 728-737

The test for heterogeneity was significant (χ^2_{16}=33.65; P=.006). The weighted mean difference significantly favors controls (z=13.14; P<.001). The size of the data marker corresponds to the weight of that study. Error bars represent 95% confidence intervals.

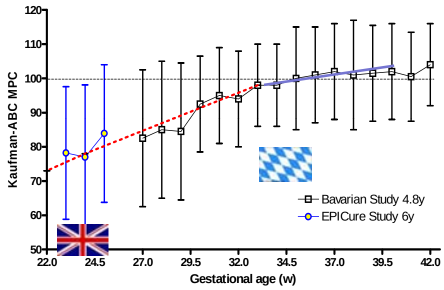
Figure 2. Correlations Between Mean Cognitive Scores, Birth Weight, and Gestational Age



Correlations between each variable (birth weight and gestational age) and mean cognitive test scores were significant (birth weight: R^2=0.51; P<.001; and gestational age: R^2=0.49; P<.001). The preterm-born children scored lower on tests of cognition for both variables.

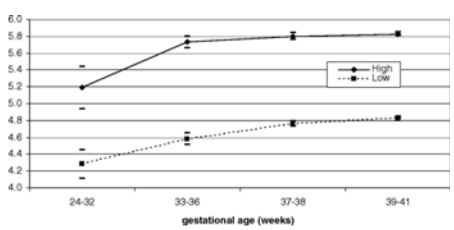
Bhutta et al., JAMA, 2002, 288: 728-737

Relationship of IQ and GA



Wolke D, Schulz J, Meyer R. Entwicklungslangzeitfolgen bei ehemaligen, sehr unreifen Fruehgeborenen. Monatsschrift fuer Kinderheilkunde. 2001; 149(Supplement 1):S53-S61.

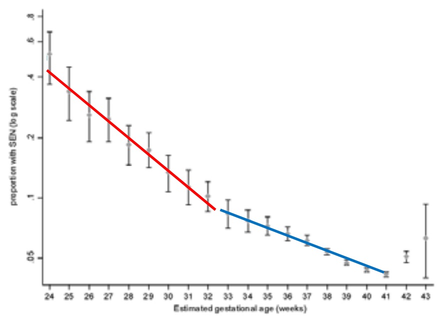
FIGURE 1 Mean test score by GA and SES with 95% confidence interval



Ekeus, C. et al. Pediatrics 2010;125:e67-e73

PEDIATRICS

Prevalence of special educational need by gestation at delivery



MacKay DF, Smith GCS, Dobbie R, Pell JP. Gestational Age at Delivery and Special Educational Need: Retrospective Cohort Study of 407,503 Schoolchildren. PLoS Med. 2010;7(6):e1000289.

1. Gestation and Cognitive Function

1. **Two Impact Lines: Turning point around 32 weeks gestation.**
2. **Mild adverse impact on IQ starts at <40 weeks gestation**
3. **Strong adverse impact when <32 weeks gestation**

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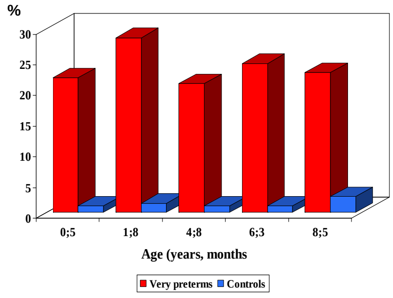
Percentage of VPI with severe IQ-Deficits (< - 2 SD) during the first 9 years of life (all children) BLS



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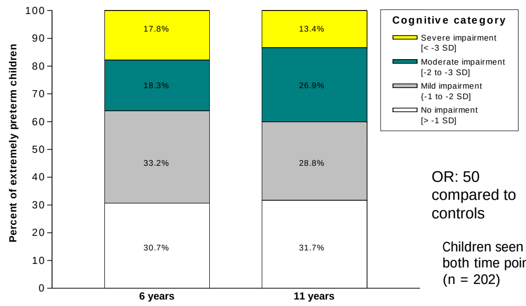
Cognitive impairment at 6y & 11y (EPICure)



OR: 50 compared to controls

Children seen at both time points (n = 202)

No major individual changes over time

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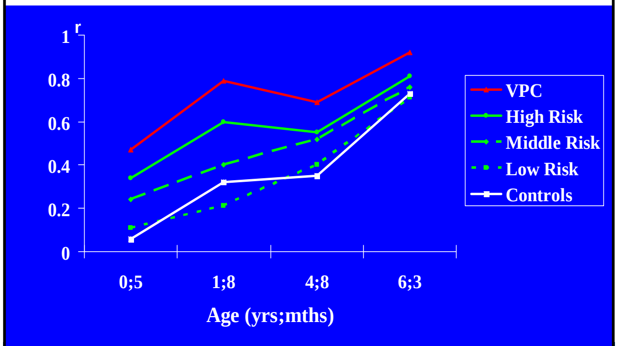
DQ/IQ Correlations with the K-ABC (MPC) at 8;5 Years

All Children



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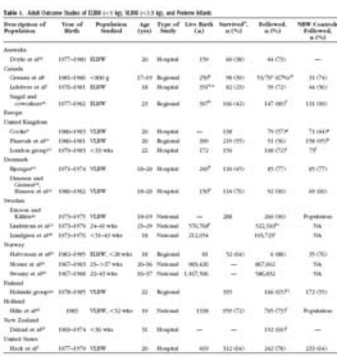
Adult Outcomes of Preterm Children

Maureen Hack, MBChB 2009



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2. Cognitive Problems and Stability

1. **Very Preterms: moderate to high stability.**
   Continues into adulthood
1. **Preterms (>32 wks gest): low to moderate stability**

- **The potential for change is larger in the higher gestation preterm groups**

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Specific Cognitive Problems

- **Defined as deficits that are not explained by general IQ (*g-factor)***
- **Language**
- **Mathematical reasoning**

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Table III. Mean performance and frequency of serious impairment in the EPICure cohort and comparison group for language abilities on the PLS-3 before and after adjustment for general cognitive scores (MPC)

PLS-3	Unadjusted mean (95% CI)	Adjusted mean (95% CI)	Unadjusted OR for serious impairment (95% CI)	Adjusted OR for serious impairment (95% CI)
Total score				
Extremely preterm	89.6 (86.8 to 92.4)	96.7 (94.3 to 99.2)	9.6 (2.9 to 32.2)*	1.3 (0.3 to 5.3)
Comparison	103.9 (101.6 to 106.2)*	98.5 (95.4 to 101.5)		
Auditory comprehension				
Extremely preterm	88.7 (86.4 to 91.1)	94.1 (91.9 to 96.3)	8.3 (1.9 to 35.7)‡	1.6 (0.3 to 9.8)
Comparison	101.3 (99.1 to 103.5)*	96.5 (93.7 to 99.3)		
Expressive communication				
Extremely preterm	92.6 (89.6 to 95.5)	100 (97.4 to 102.6)	10.7 (2.5 to 45.5)*	1.2 (0.2 to 6.5)
Comparison	105.4 (103.1 to 107.8)*	100.5 (97.2 to 103.8)		
Articulation screener				
Extremely preterm	32.7 (31.7 to 33.8)	34.3 (33.3 to 35.3)	3.9 (1.2 to 11.6)‡	1.1 (0.3 to 4)
Comparison	34.9 (34.2 to 35.6)†	34.5 (33.2 to 35.8)		

*$P < .001$.
†$P < .05$ for differences between the extremely preterm and comparison groups.
‡$P < .01$.

Wolke, D., Samara, M., Bracewell, M., & Marlow, N. (2008). Specific Language Difficulties and School Achievement in Children Born at 25 Weeks of Gestation or Less. *The Journal of* Pediatrics, 152(2), 256-262.

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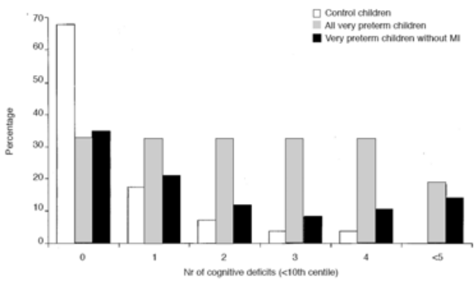
Multiple Cognitive Problems

Figure 4: *Relative frequency of multiple cognitive deficits of very preterm and control children.*



Wolke, D., & Meyer, R. (1999). Cognitive status, language attainment and prereading skills of 6-year-old very preterm children and their peers: The Bavarian Longitudinal Study. *Developmental Medicine and Child Neurology, 41(2), 94-109.*

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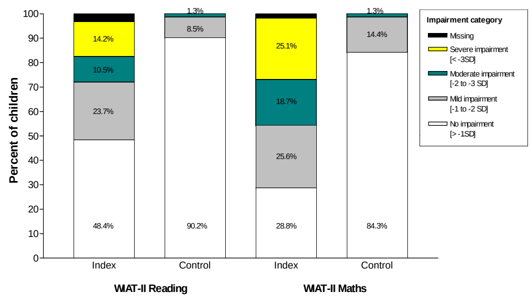
Academic impairment at 11y

Johnson, S., Hennessy, E. M., Smith, R. M., Trikic, R., Wolke, D., & Marlow, N. (2009). Academic attainment and special educational needs in extremely preterm children at 11 years of age: the EPICure Study. *Arch. Dis. Child. Fetal Neonatal Ed., 94, F283-F289*



OR 25.80 (6 to 108) **OR 60.91 (6 to 108)**

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Specific Math problems

VLBW/VPTB samples score less well than NBW control groups on mathematics tests, even when excluding children with mental retardation or neurosensory disorders ... or when controlling for IQ.

Several studies of children with VLBW/VPTB have found that selective deficits in mathematics are accompanied by specific cognitive weaknesses, most often in the domains of visual spatial and perceptual motor abilities and executive function.

Taylor HG, Espy KA, Anderson PJ. Mathematics deficiencies in children with very low birth weight or very preterm birth Dev Disabil Res Rev. [Review]. 2009;15(1):52-9.

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3. Specific Cognitive problems

- **Little evidence for specific problems related to acquired abilities (language, reading)**
- **In contrast, mathematical and visual spatial difficulties are specific problems and not solely explained by *g-factor.***

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From Cognition to Behaviour

- Attention is the pre-requisite to all behaviour
- Alerting, orienting and execution
- Exploited in early infancy cognitive tests – e.g. a basic function is habituation



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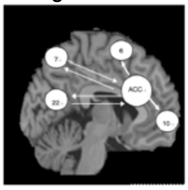
Self-regulation: integrating cognition and behaviour

Self-regulation is a natural function of brain networks, designed to control the influx of information from the environment through orienting in order to avoid conflicting responses



ACC: anterior cingulate cortex

Posner, M. I., Sheese, B. E., Odludas, Y., & Tang, Y. (2006). Analyzing and shaping human attentional networks. *Neural Networks, 19(9), 1422-1429.*

Fig. 3. The results of an fMRI connectivity analysis based on the correlations between the dorsal anterior cingulate and other cortical brain areas. Dynamic causal modeling (DCM) was used to infer the direction of influence. Each circle contains the Brodmann area involved. All influences among regions shown by lines are significant in the direction of the arrow.

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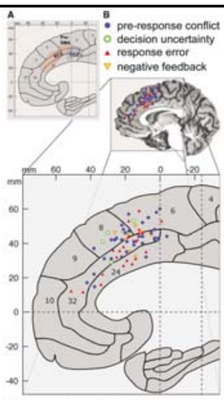

Fig. 1. Areas in the medial frontal cortex involved in performance monitoring (A) Anatomical map of the medial frontal cortex. This is a schematic map of anatomical areas in the human pMFC, based on the atlas by Talairach and Tournoux (see supporting online material).

- Attention control/deficits
- Executive Functions

Ridderinkhof KR, Ullsperger M, Crone EA, Nieuwenhuis S. The Role of the Medial Frontal Cortex in Cognitive Control.

Science,2004;306(5695):443-7.

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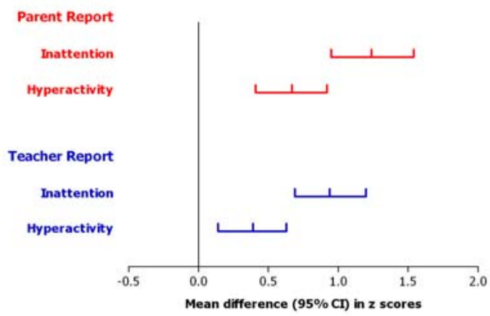
ADHD symptoms



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ADHD psychiatric diagnoses

	Classmates	Extremely preterm	OR (95% CI)	p
Any psychiatric diagnosis	8.6%	23.3%	3.2 (12.7 to 6.2)	0.000
ADHD	2.9%	11.5%	4.3 (1.5 to 13.0)	0.005
ADHD-Inattentive	0.7%	7.1%	10.5 (1.4 to 81.1)	**0.005**
ADHD-Combined	2.2%	4.4%	2.1 (0.5 to 7.9)	0.362

Johnson S, Hollis C, Kochhar P, Hennessy E, Wolke D, Marlow N. Psychiatric Disorders in Extremely Preterm Children: Longitudinal Finding at Age 11 Years in the EPICure Study. Journal of the American Academy of Child & Adolescent Psychiatry. 2010;49(5):453-63

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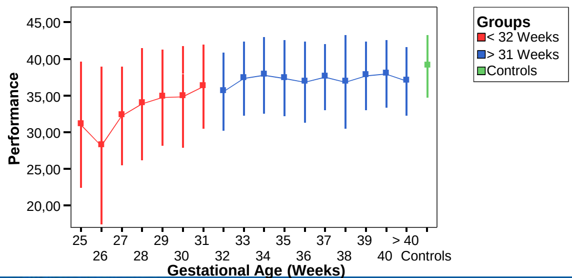
Child Behaviour at 8;5 Years

TRCB Performance (Attention span)



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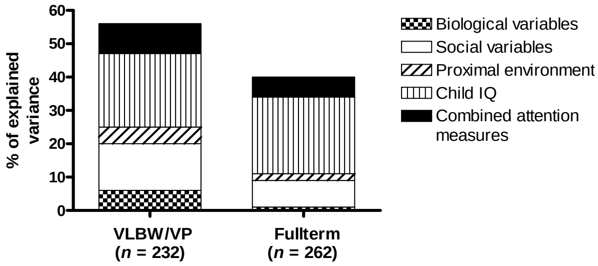
Unique contribution of attention problems in explaining academic achievement at 13 years (controlling for biological, social, parenting, child IQ factors)



Jaekel J, Bartmann P, Wolke D. Poor Attention rather than Hyperactivity/Impulsivity predicts academic achievement in Very Preterm and Fullterm Adolescents. in preparation.

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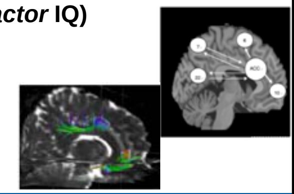
4. Specific Attention Deficit

- **Specific problems with *Attention* and not hyperactivity or impulsivity**
- **Not explained by other factors dependent on attention (e.g. *g factor* IQ)**
- **Damage to the self-regulation neural networks?**



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Executive Function: Very preterm children vs. controls

	Sample Sizes	No. of Studies	d	95% CI	P
Verbal fluency	475	5	−0.57	−0.82, −0.32	<.001
Working memory	1580	7	−0.36	−0.47, −0.20	<.001
Cognitive flexibility	586	5	−0.49	−0.66, −0.33	<.001

Aarnoudse-Moens CSH, Weisglas-Kuperus N, van Goudoever JB, Oosterlaan J. Meta-Analysis of Neurobehavioral Outcomes in Very Preterm and/or Very Low Birth Weight Children. Pediatrics. 2009 August 1, 2009;124(2):717-28.

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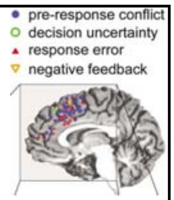
5. Executive Function



1. **Executive function problems are more frequent in very preterm children**
2. **Strongly reduced once controlled for g-factor IQ; unknown if disappear if also controlled for attention.**
3. **Not clear whether persist into adulthood**

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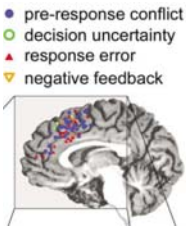
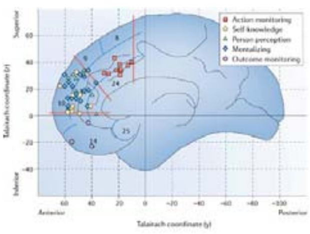
The social brain develops strongly in middle childhood throughout adolescence





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Nature Reviews | Neuroscience

Amodio *et al. Nature Reviews Neuroscience* **7,** 268–277 (April 2006) | doi:10.1038/nrn1884

nature REVIEWS NEUROSCIENCE

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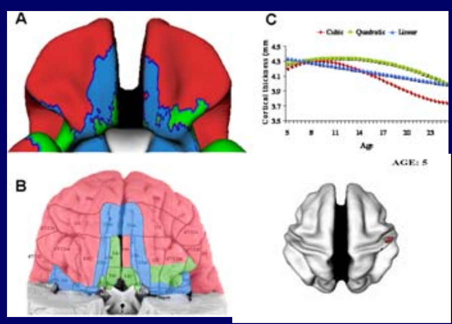
Figure 4. A. Complexity of developmental trajectories throughout the orbitofrontal cortex, projected onto a standard brain template



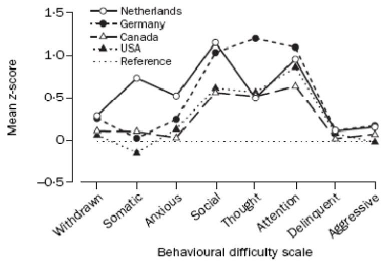
Shaw, P. et al. J. Neurosci. 2008;28:3586-3594

The Journal of Neuroscience

Regulation of Behaviour and Emotions

- Emotional and Behaviour Problems
- Psychiatric Problems

Behaviour and Emotions



Mean z-scores for eight problem scales in ELBW children
The null-line is the z-score for the country-specific reference group.

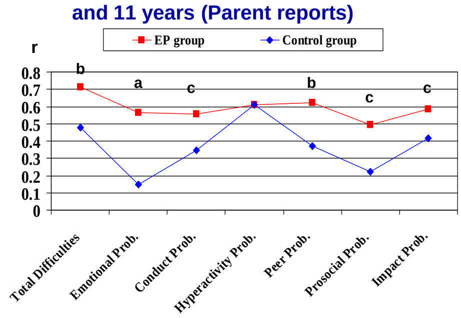
Hille, E. T. M., den Ouden, A. L., Saigal, S., Wolke, D., Lambert, M., Whitaker, A., et al. (2001). Behavioural problems in children who weigh 1000g or less at birth in four countries. *The Lancet, 357, 1641-1643.*

Behaviour problems from 6 to 11 years: Adjusted for cognitive scores

Risk for pervasive behaviour problems at 6 and 11 years

	6 years OR (95% CI)	11 years OR (95% CI)
Total difficulties	6.6 (1.4-31.3)	4.9 (1.3-18.1)
Emotional problems	5.1 (1.5-16.9)	15.3 (1.9-122.9)
Conduct problems	2.2 (0.7-7.1)	2.1 (0.2-20.4)
Hyperactivity/Inattention	2.4 (0.9-6.0)	4.8 (1.0-22.3)
Peer problems	2.5 (0.9-6.8)	2.8 (0.8-9.1)
Impact upon daily life	1.4 (0.6-3.7)	5.5 (1.2-25.4)

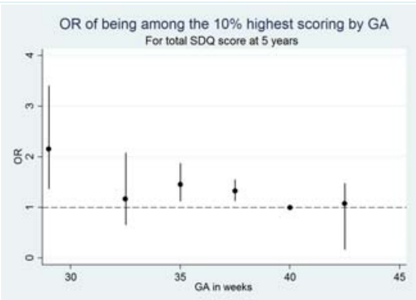
Stability of behaviour problem scores between 6 and 11 years (Parent reports)



a $p<0.001$; b $p<0.01$; c $p<0.05$

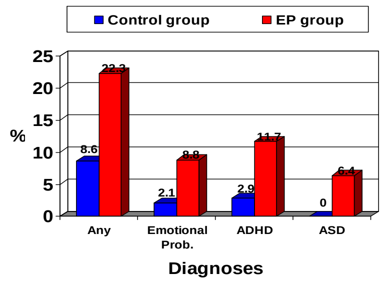
Gestational Age and SDQ Problem Scores (odds ratios; Millennium Cohort 16.000 children)

23-31 weeks
32-33 weeks
34-36 weeks
37-38 weeks
39-41 weeks
42-43 weeks



Wolke, Poulson, Quigley et al., in preparation

Psychiatric Diagnoses at 11 yrs: DSM-IV (DAWBA)



Johnson, S., Hollis, C., Kochhar, P., Hennessy, E., Wolke, D., & Marlow, N. (2010). Psychiatric Disorders in Extremely Preterm Children: Longitudinal Finding at Age 11 Years in the EPICure Study.]. *Journal of the American Academy of Child & Adolescent Psychiatry, 49(5), 453-463.*

Rates of Typical Autism

In General Population

7.1 per 10,000 (95% CI: 1.6, 30.6)*

In Extremely Preterms

650 per 10,000

The Journal of Pediatrics • www.jpeds.com ORIGINAL ARTICLES

Autism Spectrum Disorders in Extremely Preterm Children

* Williams JG, Brayne CEG, Higgins JPT: Systematic review of prevalence studies of autism spectrum disorders. Arch Dis Child 2005:adc.2004.062083

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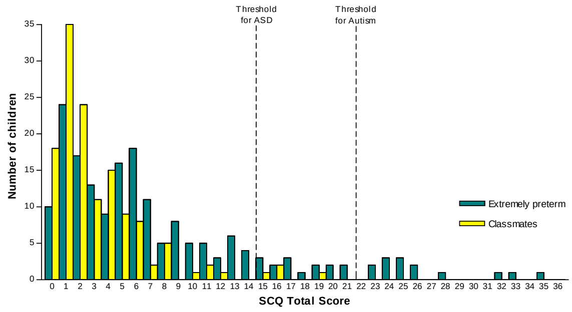
Frequency distribution of SCQ Autism scores



Extremely preterm children were 6 times more likely to have ASD than classmates (OR 6.3, 95% CI 2.1 to 18.3).

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Adult Outcomes of Preterm Children

Maureen Hack, MBChB

Transition of Extremely Low-Birth-Weight Infants From Adolescence to Young Adulthood: Comparison With Normal Birth-Weight Controls

Saroj Saigal; Barbara Stoskopf; David Streiner, et al

JAMA. 2006;295(6):667-675 (doi:10.1001/jama.295.6.667)

Long-Term Medical and Social Consequences of Preterm Birth

Dag Moster, M.D., Ph.D., Rolv Terje Lie, Ph.D., and Trond Markestad, M.D., Ph.D.

Functioning at School Age of Moderately Preterm Children Born at 32 to 36 Weeks' Gestational Age

Anneloes L. van Baar, John Vermaas, Edwin Knots, Martin J. K. de Kleine and Paul Soons

Pediatrics 2009;124:251-257

Depression in Young Adults With Very Low Birth Weight

The Helsinki Study of Very Low-Birth-Weight Adults

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Personality and Sociability

TABLE 2 Mean Differences Between the ELBW and NBW Groups on the Temperament, Motivation, Cognitive and Affective, and Socialization Components of Personality

Variable[a]	Group, Mean (SD) ELBW (n = 70)[b]	NBW (n = 83)	t	df	P	d
Shyness	0.17 (0.87)	−0.15 (0.82)	2.32	151	.022	0.38
Sociability	−0.16 (0.86)	0.14 (0.91)	−2.11	151	.037	−0.34
Behavioral inhibition	0.16 (0.97)	−0.14 (1.01)	1.85	151	.067	0.30
Behavioral approach	−0.07 (0.81)	0.06 (0.76)	−0.98	151	.329	−0.17
Emotional well being	−0.15 (0.98)	0.15 (0.85)	−1.96	149[c]	.052	−0.33
Socialization	0.23 (0.72)	−0.19 (0.79)	3.41	151	.001	0.56

Pediatrics -- Schmidt et al. 122 (1): e181

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Risk taking, Sexual Relations and Independence

- **less risk taking: e.g. Less early sex, smoking or drinking**
- **same or lower anti-social behaviour**
- **fewer with partners or are cohabiting**
- **more living at home**

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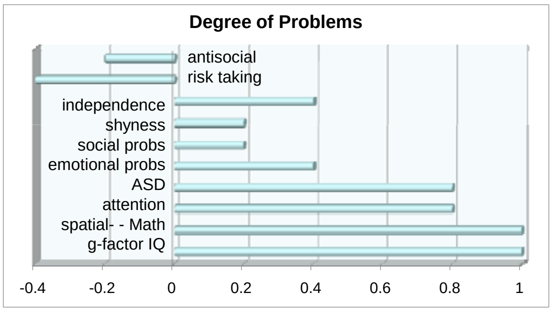
Behavioural Phenotype: Summary



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Behavioural Phenotype: Summary

Highest Risk: Extremely and very preterm children

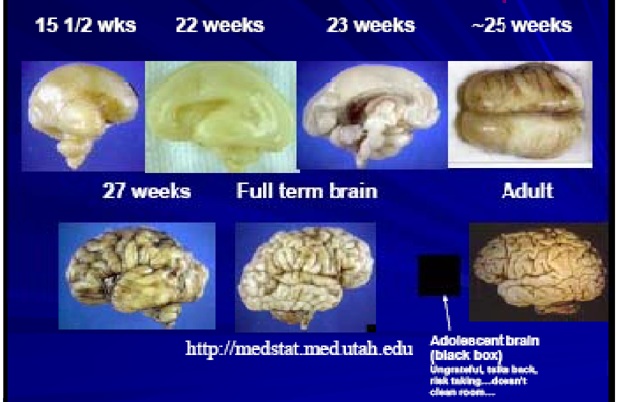
Increased Risk: starts already <40 weeks gestation

increased risk may have moderate impact on population basis – higher number of children at 33-39 weeks gestation

Implications

- The number of surviving very/extremely preterm children is increasing
- The extremely preterm children do not outgrow these problems – they increase with increasing demands (school, peers….)
- DESPITE most receiving special educational or therapeutic assistance!
- There is less developmental plasticity
- Points to alterations in brain development

An Accelerated View of Brain Development



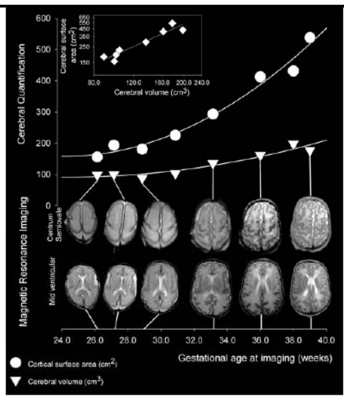


Figure 2. Serial MR Imaging of Brain Growth in a Normal Female Preterm Infant

Kapellou et al., PLos Medicine, 2006, 3(8), e264

Prediction for Intervention

- At very or extreme prematurity – the brain is less able to benefit from environmental input (subgroup)
- Prediction: interventions are beneficial for larger preterm infants (potentially intact brains) while less successful for very preterm children
- Focus on increasing the Quality of life of the children and families

Beautiful: but Reaching the Limits of Tuning?

EVIDENCE-BASED CHILD HEALTH: A COCHRANE REVIEW JOURNAL
Evid.-Based Child Health 3: 145–206 (2008)
Published online in Wiley InterScience (www.interscience.wiley.com). DOI: 10.1002/ebch.209

Early developmental intervention programs post hospital discharge to prevent motor and cognitive impairments in preterm infants (Review)

Spittle AJ, Orton J, Doyle LW, Boyd R

DEVELOPMENTAL MEDICINE & CHILD NEUROLOGY — SYSTEMATIC REVIEW

Do early intervention programmes improve cognitive and motor outcomes for preterm infants after discharge? A systematic review

JANE ORTON[1] | ALICIA SPITTLE[1,2,3] | LEX DOYLE[1,2,4] | PETER ANDERSON[2,5] | ROSLYN BOYD[2,6]

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Early Interventions: after discharge focussing on parent-infant interaction or infant support

- Some short-term or medium term positive effects on cognitive development
- No longterm (up to school) effects
- No improvement in motor outcome

Orton J, Spittle A, Doyle L, Anderson P, Boyd R. Do early intervention programmes improve cognitive and motor outcomes for preterm infants after discharge? A systematic review. Developmental Medicine & Child Neurology. 2009;51(11):851-9.

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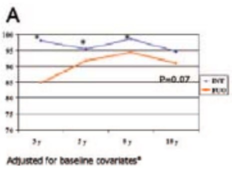
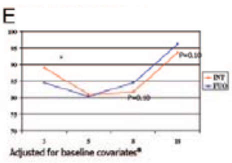
Largest Post discharge Intervention Study: IHDP

Effects on IQ



Large Preterms: 2001-2500g



Smaller Preterms: <2001

McCormick, M. C., Brooks-Gunn, J., Buka, S. L., Goldman, J., Yu, J., Salganik, M., et al. (2006). Early Intervention in Low Birth Weight Premature Infants: Results at 18 Years of Age for the Infant Health and Development Program. *Pediatrics, 117(3), 771-780.*

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Post discharge Intervention

- Some improvement for larger Preterm children > 2000g
- No lasting improvement for smaller preterm infants < 2000g

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Intervention in the Neonatal Unit

Randomised trial of a parenting intervention during neonatal intensive care

Cris Glazebrook, Neil Marlow, Christine Israel, Tim Croudace, Samantha Johnson, Ian R White, Andrew Whitelaw

Arch Dis Child Fetal Neonatal Ed 2007;92:F438–F443. doi: 10.1136/adc.2006.103135

ORIGINAL ARTICLES — www.jpeds.com • THE JOURNAL OF PEDIATRICS

Randomized Trial of a Parenting Intervention for Very Preterm Infants: Outcome at 2 Years

Samantha Johnson, PhD, CPsychol, Andrew Whitelaw, MD, FRCPCH, Cris Glazebrook, PhD, CPsychol, Chrissie Israel, RN, RSCN, Rebecca Turner, PhD, Ian R. White, MSc, Tim Croudace, PhD, Franca Davenport, MSc, and Neil Marlow, DM, FMedSci

September 2009

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Intervention Effects on Behaviour and parenting first 3 months

Table 3 Intervention effects on outcome variables measured before discharge and at 3 months corrected age*)

	Intervention mean (SD)	n	Control mean (SD)	n	Adjusted intervention-control difference (95% CI)†
Before discharge					
NAPI scores at 35 weeks (average of 7 z scores)	*0.40 (0.54)*	*101*	*0.35 (0.65)*	*110*	*0.09 (−0.06 to 0.23), p=0.17*
NCATS cognitive growth fostering	9.5 (3.3)	94	10.1 (3.0)	102	
NCATS maternal sensitivity to cues	9.4 (1.2)	94	9.2 (1.2)	102	
NCATS emotional and social growth fostering	7.9 (1.6)	94	8.1 (1.5)	102	
NCATS maternal response to distress	9.8 (1.6)	94	10.0 (1.6)	102	
NCATS total caregiver score	*36.6 (5.1)*	*94*	*37.4 (4.9)*	*102*	*−0.7 (−2.7 to 1.4), p=0.43*
3 months corrected age					
NCATS cognitive growth fostering	10.2 (2.9)	93	10.7 (3.2)	106	
NCATS maternal sensitivity to cues	9.6 (1.1)	93	9.5 (1.1)	106	
NCATS emotional and social growth fostering	7.5 (1.5)	93	8.0 (1.6)	106	
NCATS maternal response to distress	10.0 (1.5)	93	10.2 (1.3)	106	
NCATS total caregiver score	37.4 (4.8)	93	38.3 (5.2)	106	−0.8 (−3.6 to 1.9), p=0.45
PSI Difficult child	23.6 (7.1)	91	21.4 (6.8)	108	
PSI Parental distress	27.2 (7.9)	91	26.3 (9.2)	108	
PSI Dysfunctional interaction	21.0 (6.4)	91	19.4 (6.0)	108	
PSI total score	*71.9 (18.9)*	*91*	*67.1 (19.6)*	*108*	*3.8 (−4.7 to 12.4), p=0.28*
HOME responsiveness	*8.8 (1.1)*	*92*	*9.1 (1.5)*	*107*	*−0.2 (−0.9 to 0.5), p=0.46*

HOME, Home Observation for Measurement of the Environment; NAPI, Neurobehavioral Assessment of the Preterm Infant; NCATS, Nursing Child Assessment Teaching Scale; PBIP, Parent Baby Interaction Programme; PSI, Parenting Stress Index.
*Primary and secondary outcomes in italics.
†Adjusted for cluster-crossover design and for baseline variables (maternal age, maternal education, marital status, parity, gestational age, birth weight, number of fetuses, infant sex and index of multiple deprivation).

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Interventional parenting programmes

A good idea that doesn't work: the Parent Baby Interaction Programme

Martin P Ward Platt

Perspective on the paper by Glazebrook *et al* (*see page 438*)

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Conclusions

- Best Intervention for very and extreme Preterms
- Avoidance of prematurity (Reproduction medicine has led to an increase)
- Functional follow-up – by the second year of life we have a good idea about longterm development (identifying subgroup)
- Focus on the family and child rather than IQ increase or enhanced motor function

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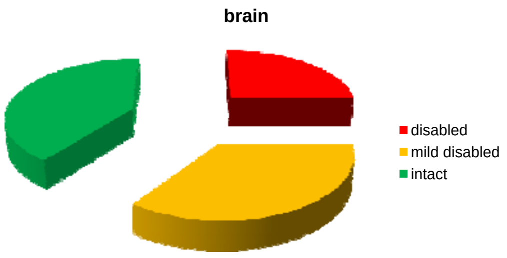
Identifying the subgroups – intact and mildly disabled likely to benefit from intervention



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Conclusions

- Major target of intervention: children born at 33-39 weeks gestation
- Avoid early term elective casesarean section (37-39 weeks)
- Functional assessment of cognitive and behavioural development
- Focus on child and parent-child interaction – increase in IQ and motor imrovements are realistic goals

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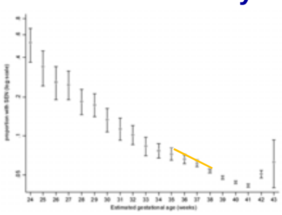
Changes in Reproductive Medicine: Prematurity still highest risk



Last 20 years

• increase of preterm birth 2%: 2000 more cases of any SEN/yr

• increase in near term births 6.2%: 1200 cases more of any SEN/yr

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Developmental assessment of preterm infants at 2 years: validity of parent reports

Samantha Johnson* PhD CPsychol, School of Human Development, University of Nottingham, Nottingham;
Dieter Wolke PhD Dipl-Psych CPsychol, Department of Psychology, University of Warwick, Coventry;
Neil Marlow DM FRCPCH, School of Human Development, University of Nottingham, Nottingham, UK; for the Preterm Infant Parenting Study Group.

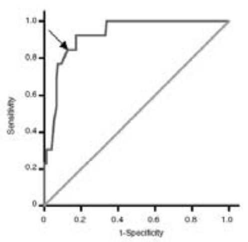

Figure 1: *Receiver-operating-characteristic curve of prediction of Mental Development Index (of the Bayley Scales of Infant Development – 2nd edn) scores <70 from Parent Report of Children's Abilities – revised Composite scores. Arrow denotes optimal predictive value.*

Developmental Medicine and Child Neurology, 2008

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Thank you to my colleagues

Bayerische Entwicklungsstudie BEST

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Danke fuer das Zuhoeren

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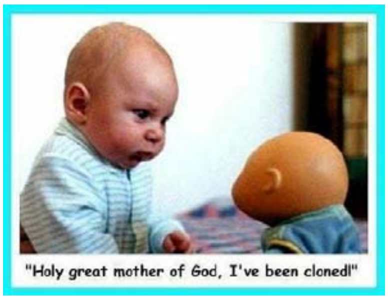

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