

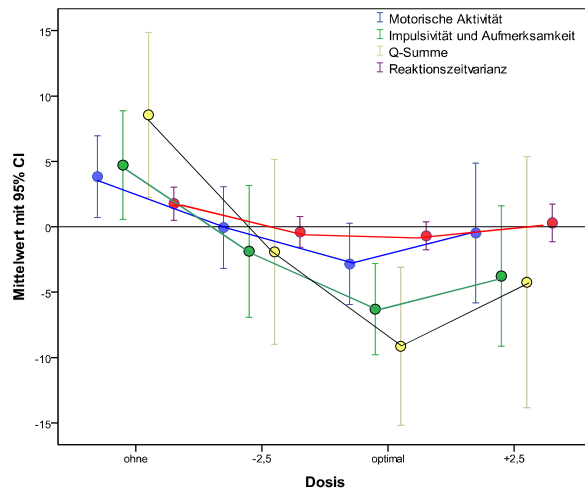
Video-assisted observation of facial expression and neuropsychological QbTest-features in children with ADHD share a curvilinear course and both of them indicate the same optimal methylphenidate dose

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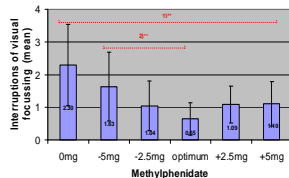
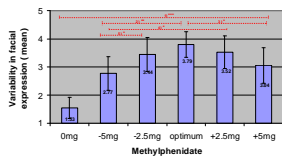
Introduction: The best methylphenidate dose for children with ADHD can be found by observation of changes in the variability of the facial expression and of the directness of the performance in math tests. Variability augments with rising MPH-doses by steps of 2.5mg and decreases after passing a turning point which is considered as optimal dose. These optimal doses range from 5 to 20mg, showing a normal distribution with a maximum at 12.5mg single dose (Kühle et al. J Attention Disorders 10, 2007).

Results: The one way ANOVA shows significant differences for all four doses. All QbTest results show a curvilinear course as seen by video-assisted observation.

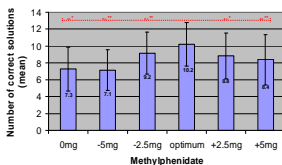


Methylphenidate dose related changes in facial expression 1) 0mg < -5mg; -2.5mg; optimum; +2.5mg and +5mg; 2) -5mg < optimum; 3) +5mg < optimum (N=568 ratings) *** p < .001; ** p < .01; * p < .05

Methylphenidate related changes in interruptions of visual focusing (N=567 ratings) 1) 0mg > -2.5mg; optimal; +2.5mg and +5mg; 2) -5mg > optimum; *** p < .001; ** p < .01



Methylphenidate dose related changes in intellectual performance 1) optimum > 0mg (t[24]=-5.39); 2) optimum > -5mg (t[21]=-5.31); 3) optimum > -2.5mg (t[24]=-2.92); 4) optimum > +2.5mg (t[24]=-2.45); 5) optimum > +5mg (t[22]=-2.98); *** p < .001; ** p < .01; * p < .05



After about 6 months of treatment with the optimal dose we could do a second check of their behaviour in all patients except one. They show highly significant improvement in every day life and remission in Du Paul's ADHD parent rating scale.

Objectives: To test if neuropsychological reaction time features as measured by the QbTest coincide with self regulation features as seen by video assisted observation.

Methods: A clinical convenience sample of 12 ADHD-patients (6-12 years old, 2 girls and 10 boys) were recorded playing cards with their mothers and doing oral arithmetic exercises without and 1 hour after intake of immediate released MPH. This is our usual procedure of dose determination. Afterwards they did the QbTest. Doses were augmented day by day for 2.5mg. Variability of facial expression of a 2-minute period was rated on a 5-point-scale and correct solutions of math tests of a 2-minute-period were counted. Thus the optimal dose was determined. The results of QbTest (Motor behaviour, attention, the sum of both and reaction time variance) were plotted for the different doses. Du Paul's ADHD rating scale was given to parents before and 6-12 weeks after start of treatment with optimal dose.

Date of Birth	DSM-IV-ADD-Quotient before Therapy	DSM-IV-ADD-Quotient = 6 Months after Therapy with Optimal Dose	DSM-IV-Impulsivity/Hyperactivity-Quotient before Therapy	DSM-IV-Impulsivity/Hyperactivity-Quotient = 6 Months after Therapy with optimal dose
09.08.2002	2,11	0,55	2,11	0,33
11.02.2002	1,00	0,33	0,55	0,66
01.12.2003	1,88	0,33	2,33	0,44
26.03.1999	1,88	1,05	1,55	1,11
01.10.1997	1,33	0,77	1,22	0,66
19.08.2000	1,77	1,44	0,22	0,22
14.11.2000	1,77	1,22	2,22	0,94
11.12.1999	1,88	0,88	1,88	1,11
22.10.2000	1,55	0,44	1,94	0,33
30.12.2001	2,33	0,01	2,33	1,44
12.04.1999	2,77		2,55	
Mean	1,84	0,70	1,69	0,69
SD	0,45	0,43	0,74	0,40

The two-tailed Student's t-test for paired samples shows highly significant pre-post differences (p<0.001) in spite of the small sample size.

Conclusions: Video-assisted observation of involuntary behaviour in ADHD-children coincides with neuropsychological QbTest-features. Both show a curvilinear course which permits the determination of an optimal dose.

Optimal self regulation will facilitate adaptive and adequate behaviour.

Dose-finding should consider the concept of an optimal dose instead of a minimal effective dose.

In QbTest individual courses are more informative than absolute Qb-values.

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