

# Blood pressure tracking and implications for the design and sample size of intervention trials

Prof. Dr. Michael Toschke  
IBE, Ludwig-Maximilians-Universität München

Vortrag im Rahmen des Institutskolloquiums

**3. Februar 2010, 16:15 Uhr**

**Seminarraum, Ludwigstraße 33 I**

**Aim:** Blood pressure (BP) is related with cardiovascular disease. BP tracking in childhood and its implication for intervention trials is unknown.

**Methods:** A systematic review and meta-analysis was conducted to estimate BP tracking.

**Results:** In 29 independent studies on 27,820 subjects follow-up length and baseline age were associated with systolic BP tracking (both  $p < 0.05$ ), while sex, BP measurement method and study place were not ( $p = 0.215$ ,  $p = 0.185$  and  $p = 0.391$ ). The overall adjusted systolic BP correlation coefficient was 0.44 between 10 and 11 years and decreased to 0.37 between 10 and 20 years. Comparison of BP changes before and after intervention need a 26% increased sample size for a 10 year follow-up of 10 year olds, while trials comparing BP values at study end only require smaller sample sizes.

**Conclusion:** BP tracking from childhood to adulthood affects trials assessing long-term effects on BP and was low to moderate. Therefore regular blood pressure controls are also needed in children with normal blood pressure measurements possibly identifying hypertensive children earlier. A slight short-term intervention effect on BP may not have any long-term effects due to low BP tracking and its decrease by age.