Much neuropsychological research has focused on the effects of injury to various parts of the brain. Increasingly sophisticated neuropathological and neuroimaging studies have identified the nature and common sites of diffuse axonal injury associated with traumatic brain injury (TBI) and neuropsychological studies have elucidated the common cognitive and behavioural changes associated with these injuries. Despite this, it remains very difficult to predict outcome in any individual case. There is a growing body of research which has identified that significance of the make-up of the injured person in determining their recovery trajectory from TBI across the spectrum of injury severity. In this address I will discuss studies which have identified the influence of factors such as pre-injury ability, education, psychiatric history, social support, cultural background and other factors on outcome following TBI. In order to improve outcomes, it is vital that clinicians understand and embrace these influences and address them as part of the rehabilitation process.

Correspondence: Jennie Ponsford., NSR, Australia. E-mail: jennie.ponsford@monash.edu

SITRDAY MORNING, JULY 13, 2013

Symposium 10: Neurocognitive Development in Adolescence: Normal and Subnormal

Chair: Mariette Huizinga

Discussant: Peter Isquith

8:45–10:15 a.m.

A. VAN DUIJVENVOORDE, H. HUIZENGA, L.L. SOMERVILLE, A. POWERS, W.D. WEEDA, M.R. DELGADO, B.J. CASEY, E.U. WEBERS & B. FIGNER, Neural Correlates of Expected Risks and Returns in Children's, Adolescents', and Adults' Risky Choice. Objective: It is known that risky behaviors like harmful substance use and dangerous behavior in traffic start and/or peak during adolescence. This increase in risk-taking has been explained by an imbalance between affective-motivational versus cognitive-control processes, caused by the differential subcortical versus prefrontal maturational trajectories. To investigate the processes that underlie and drive individual and age differences in overt risk-taking levels, we decomposed risky choices by use of the ‘risk-return model’.

Participants and Methods: In an fMRI-scanner, 23 children (M=10 years), 25 adolescents (M=17.9 years) and 24 adults (M=28.3 years) played an fMRI-adjusted version of a dynamic risky-choice task, the Columbia Card Task. For each decision a player faced—to either turn over a card or move on to the next round—we calculated the expected value (overall value of possible choice outcomes: greater EV=greater return) and the expected risks (standard deviation of possible choice outcomes: greater SD=greater risk).

Results: Behavioral results showed that greater returns increased the probability to take a card—all ages liked greater returns—and this sensitivity increased linearly with age. fMRI analyses showed a similar age-related increase in neural activation to returns in reward-related brain regions. Further, greater risk decreased the probability to take a card—all ages displayed greater risk—however, this sensitivity was absent in children and highest in adolescents. fMRI analyses showed a similar age-related increase in neural activation to risk that tended to peak in adolescence.

Conclusions: These results illustrate the importance of decomposing influences in risky choice and are discussed in relation to neurodevelopmental models of adolescent risk-taking.

Correspondence: Anna Van Duijvenvoorde, Developmental and Educational Psychology, Wissenburgweg 52, Leiden 2333 AK, Netherlands. E-mail: a.e.k.van.duijvenvoorde@etu.leidenuniv.nl

P. DE ZEEUW, J. WEUSTEN, S. VAN DIJK, J. VAN BELLE & S. DURSTON, Neuropsychological Heterogeneity in ADHD: Implications for Theory and Practice. Objective: Recent neurobiological models of ADHD suggest that deficits in different neurobiological pathways may independently lead to symptoms of this disorder. At least three independent pathways may be in-