affected by lipid solubility. Alternatively, statins might act through processes other than inhibition of cholesterol synthesis, which might not require penetration of the blood–brain barrier.

Original article Haag MDM *et al.* (2008) Statins are associated with a reduced risk of Alzheimer disease regardless of lipophilicity: The Rotterdam Study. *J Neurol Neurosurg Psychiatry* [doi:10.1136/jnnp.2008.150433]

Tissue microstructure might predict neurological impairment in infants born preterm

Mortality rates of preterm infants have decreased in recent years; however, those who survive preterm birth have a high prevalence of subsequent neurodevelopmental impairment. Counsell *et al*. investigated the relationship between local, microstructural abnormalities in white matter and neurodevelopmental impairment in 2-year-old children who were born preterm.

In all, 33 children (median corrected age 25.5 months; median gestational age at birth 28 weeks) who had no focal brain abnormalities on conventional MRI underwent diffusion tensor imaging. High fractional anisotropy (FA) values on diffusion tensor imaging reflect an intact tissue microstructure. The children were also assessed by use of the revised Griffiths Mental Development Scales. Results from the neurodevelopmental evaluations significantly correlated with specific imaging findings in the brain. Increased FA values in the isthmus and corpus callosum correlated with increased overall development quotient scores ($P<0.01$ for both). Likewise, subscores for performance were positively associated with FA values in the corpus callosum ($P<0.01$), and eye–hand coordination was positively associated with FA values in the corpus callosum, cingulum, fornix, anterior commissure and right uncinate fasciculus ($P<0.01$ for all). These areas are associated with attention, executive function and working memory; therefore, the findings suggest that many children born preterm might have difficulties with information processing and decision making, particularly with regard to performance and execution of actions.

The authors suggest that FA measurements might provide additional prognostic information for preterm infants and might be a useful biomarker for further studies in this setting.

Original article Counsell SJ *et al.* (2008) Specific relations between neurodevelopmental abilities and white matter microstructure in children born preterm. *Brain* [doi:10.1093/brain/awn268]

Acetone enhances the efficacy of some anticonvulsant drugs in mice

The ketogenic diet is a high-fat diet that has proven efficacy in many patients with drug-resistant epilepsy. Acetone, the major ketone body produced as a result of the diet, has anticonvulsant effects. However, little is known about the interactions between acetone and antiepileptic drugs (AEDs). An investigation by Zarnowska *et al.* on the influence of acetone on the efficacy of AEDs in mice has shown that acetone enhances the effects of some anticonvulsants.

The researchers tested the effect of subthreshold doses of acetone (i.e. doses that did not themselves protect against seizure) on the potency of seven AEDs in mice subjected to the maximal electroshock (MES) test. Intraperitoneal injection of acetone (7.5 mmol/kg) significantly enhanced the protective effects of carbamazepine, lamotrigine, phenobarbital and valproate against MES-induced seizures, but acetone had no influence on the efficacy of oxcarbazepine, phenytoin or topiramate. Brain concentrations of the tested drugs were unaffected by acetone; however, brain concentrations of acetone were reduced by these AEDs. Acetone did not affect the adverse effect profiles of the tested drugs; it had no influence on motor impairment or long-term memory as measured by the chimney and passive avoidance tests, respectively.

The authors conclude that acetone enhances the efficacy of some AEDs. The findings could have implications for patients on the ketogenic diet who are taking anticonvulsants. Further studies to elucidate the interaction between acetone and AEDs are warranted.

Original article Zarnowska I *et al.* (2008) Pharmacodynamic and pharmacokinetic interactions between common antiepileptic drugs and acetone, the chief anticonvulsant ketone body elevated in the ketogenic diet in mice. *Epilepsia* [doi:10.1111/j.1528-1167.2008.01864.x]