plasma and urine testosterone incremental changes after 4 days of HCG for all patients, suggesting either urine or plasma testosterone measurements under these conditions are suitable indices of testicular function. Basal levels of urine testosterone were no direct guide as to expected response to 4 days of HCG.

Eight children with normal pubertal development on follow-up and 3 children with constitutional delayed puberty had base-line plasma testosterone and 4-hour levels after a single injection of HCG (1500 units), directly proportional to their maturational status (Tanner I-V). The less mature (Tanner I-II) had very low basal plasma testosterone levels which did not change significantly at 4 hours. Good responses 24 to 48 hours after the single injection of HCG were, however, shown. This may be a useful alternative test of gonadal function to the 4-day stimulation test.

Congenital postural scoliosis. P. M. Dunn. University of Bristol, Department of Child Health, Southmead Hospital, Bristol.

Between 1960 and 1966, 19 infants were observed to have a smooth persistent, lateral curvature of the spine without bony malformation soon after birth (Dunn, 1969). 9 (47%) of these infants presented by breech at delivery. 2 infants, both born to women with marked oligohydramnios, died shortly after birth; their spines were examined closely at necropsy and the presence of scoliosis without malformation was confirmed.

Of the 19 cases of scoliosis, 9 were noted during a personal study of 6756 infants born consecutively in hospital during a 3-year period (Dunn, 1972), giving an incidence of approximately 1/1000. (The true incidence may be only half as great, as this was a selected hospital population.) 8 of these 9 infants (all without teratological malformation) had associated postural deformities ($P < 0.0001$) including plagiocephaly ($P < 0.0001$), facial deformities ($P = 0.0002$), contracture of the sternomastoid muscle ($P < 0.0001$), congenital dislocation of the hip ($P < 0.0001$), and congenital deformities of the feet ($P = 0.0025$). In 2 cases there was unilateral dislocation of the hip on the side of the convexity of the curve. These facts, taken together with other clinical observations regarding these cases, and the well known high rate at which spontaneous resolution takes place during the first 3 years of life strongly support the frequently challenged belief of the late Sir Denis Browne (1965) that scoliosis may be caused by mechanical factors responsible for persistent lateral curvature of the spine during intrauterine life.

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Renal function studies in first week of life. B. J. N. Z. Danesh and I. B. Houston. Department of Child Health, St. Mary's Hospital, Manchester.

Accurately timed specimens of urine were collected

from newborn infants by a new technique. Collection was done continuously during the first 3 days and the 7th day of life, and blood samples were taken on the 1st, 2nd, 3rd, 5th, and 7th days; infants were studied only after an explanation to the parents and confirmation of their unqualified approval was obtained.

Renal function was studied in 23 babies, 8 term (39-41 weeks' gestation), 8 small-for-dates (37-39 weeks' gestation), and 7 prematures (33-36 weeks' gestation). The three groups showed maximum clearance of creatinine and urinary excretion rate (UV) of solutes (creatinine, urea, sodium, and chloride) within the first 12 hours of life, falling considerably during the next 60 hours and partially recovering by the 7th day of life. Urine flow rate and urinary sodium excretion expressed as a percentage of filtered load (%ENa) also showed a similar pattern. Though there was a marked variation in creatinine clearance, excretion rate, and %ENa in individual infants, statistical analysis did not reveal a significant difference between the three groups.

In the infants studied there was a linear relation between %ENa and PCV, suggesting that the degree of sodium excretion is related to the size of placento-fetal transfusion which occurs immediately after delivery. The rapid initial fall in %ENa may be a reflection of the postnatal need to conserve sodium as opposed to the probable intrauterine need for a large urine flow rate (and %ENa) to maintain amniotic fluid volume.

Development of mammalian fast muscle: dynamic and biochemical properties correlated. D. M. Johnston introduced by L. Taitz. Department of Child Health, the Children's Hospital, Sheffield.

Relation between granulocyte phenylalanine content and degree of neuropsychiatric disability in phenylketonuria. T. M. Andrews, R. O. McKeran, K. McPherson, and R. W. E. Watts introduced by H. B. Valman. Divisions of Metabolism and of Computing and Statistics, Medical Research Council Clinical Research Centre, Watford Road, Harrow.

The exact cause of brain damage in phenylketonuria is not understood, and we are unable to distinguish clearly in neonates between classical phenylketonuria and variant forms in which persistent hyperphenylalaninaemia does not result in neurological injury. This makes it difficult to assess the value of dietary treatment (Birch and Tizard, 1967), to identify those infants requiring strict control of blood phenylalanine levels, and to decide when dietary control can safely be relaxed.

It has been shown (Aoki and Siegal, 1970; Swaiman, Hosfield, and Lemieux, 1968) that experimental hyperphenylalaninaemia impairs ribosomal protein synthetic activity in the developing brain of neonatal rats. This suggested to us that intracellular levels of phenylalanine might be of more direct pathophysiological significance than extracellular concentrations, and might correlate more closely with the degree of brain damage in phenylketonuria than do plasma levels.

We have developed a technique to assess overall neuropsychiatric disability in phenylketonuria taking account of factors other than intelligence quotient, which is a poor discriminant in severely retarded patients. Numerical 'ability scores' were thus derived for a large group of retarded and nonretarded phenylketonurics in whom plasma and intracellular levels of phenylalanine were measured after an overnight fast. Intracellular levels were determined fluorimetrically in granulocytes isolated from venous blood.

Granulocyte levels of phenylalanine correlated significantly with ability score, being considerably higher in the more severely affected patients. No such correlation was found between ability score and plasma phenylalanine. These results suggest that the extent of brain damage in phenylketonuria is more closely related to intracellular than to plasma phenylalanine concentration, and that measurements of granulocyte phenylalanine levels, both fasting and during phenylalanine loading tests, might be helpful prognostically in the control of dietary therapy and in identifying variant forms of the disease.

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Dissociation of geographical and histiogenic development of arteries. C. L. Berry. Department of Morbid Anatomy, Guy's Hospital Medical School, London.

The geographical development of vessels, i.e. the layout of large arteries, occurs earlier than the histiogenic formulation of the specialized tissues in their walls. This dissociation permits variation in normal structural patterns and has important consequences for the cerebral circulation. Further, changes during growth may affect long-term vascular performance in physiological terms. An experimental model to examine these phenomena was described.

Environmental, clinical, and immunological study of house dust mite in childhood asthma. J. K. Sarsfield. Department of Paediatrics and Child Health, Leeds.

There is evidence that the house dust mite (*Dermatophagoides pteronyssinus*) is the commonest known offending allergen in childhood allergic asthma. Heavy infestations are found in beds and may well account for nocturnal symptoms in asthmatic children.

An environmental study was performed on a small group of children with mite-sensitive asthma. Simple measures to reduce exposure to this allergen were recommended and supervised. These were monitored

by mite counts of mattress dust. The children's clinical and immunological responses to such treatment were recorded. The changes in total serum IgE and specific IgE to *D. pteronyssinus* raise doubts that the mite is the single most important allergenic component of house dust.

Near-drowning in Oxford children. E. H. Smith and D. Pickering. Department of Paediatrics, Radcliffe Infirmary, Oxford.

In the United Kingdom approximately 300 children die each year from drowning.

In a retrospective study of near-drowning in Oxford children it was found that 20 children, 16 male and 4 female, surviving fresh water immersion, have been admitted to Oxford hospitals between January 1961 and December 1972. There were 13 cases (65%) in the 0-5 year age group, 5 (25%) in the 6-10 year age group, and only 2 (10%) in the 11-16 year age group.

Artificial respiration was given to 14 children at the place of rescue. On arrival at hospital 6 children were hypothermic, 5 children had an impaired level of consciousness, and 1 child was convulsing. 3 children were cyanosed and 11 had abnormal physical signs in the chest. 1 child had a clinical cardiac irregularity with dropped beats, but in no case was a significant hypotension recorded.

Chest x-ray was carried out in 17 children and 9 showed a definite abnormality. Oxygen was given to 3 who were cyanosed. Antibiotics were given to 13 and steroids to 6. 3 children required intensive care, including intravenous fluids and assisted ventilation. All 20 children survived.

Prevention must be the prime concern. However, it is important that all children surviving water immersion should be admitted to hospital for observation as they are then at risk of developing secondary drowning from pulmonary oedema from fresh water or salt water inhalation. The main aim of treatment should be to provide adequate oxygenation and treat hypotension whenever necessary. The importance of continuing resuscitation until the patient is normothermic has been emphasized, even when evidence of cardiac activity is absent, as cases have been reported where this has started again as the temperature has risen.

Pulmonary capillary blood flow in preterm infants with respiratory distress. R. L'E. Orme, Elizabeth A. Featherby, H. Rigatto, and June P. Brady. Department of Paediatrics and Cardiovascular Research Institute, University of California, San Francisco, California.

Observations on lactate and pyruvate concentrations, lactate/pyruvate ratios, and acid-base variables in simultaneously sampled arterial blood and CSF after presumed acute hypoxia in infants and children. H. Simpson, A. Habel, and E. George. Royal Hospital for Sick Children, Edinburgh.