Current Research on Multiple Births

6-MONTH BIBLIOGRAPHY — July-December 1992

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Subject Sections *

Title, authors, and journal source, alphabetized by journal:

- Behavior and Physiology
- Genetic Traits and Methods
- Obstetrics and Pediatrics
- General

Author Section

Authors, titles, journal source, and abstract (if available), alphabetized and cross-indexed by all authors.

* The first three subject sections include related topics; other articles on these subjects may be found in the General section. The General section comprises the many articles that could not be classified automatically on the basis of keywords or source.

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Bilateral congenital fusion of the scaphoid and trapezium in identical twins. Barnes CL, et al. **Orthopedics** 1992 Jun;15(6):739–41

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† [Triplets and quadruplets in Switzerland, 1985–1988] Arlettaz R, et al. **Schweiz Med Wochenschr** 1992 Apr 4; 122(14):511–6 (Eng. Abstr.) **(Fre)**

Family study of a twin with ossification of the posterior longitudinal ligament in the cervical spine. Taketomi E, et al. **Spine** 1992 Mar;17(3 Suppl):S55–6

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[The synchronous manifestation of the ophthalmological symptoms of Reiter's disease in twin brothers] Gaĭdaĭ IuV. **Voen Med Zh** 1991 Nov;(11):32–3 **(Rus)**

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A

Abanmi A see **Joshi RK**

Abe K, Oda N: Contributions of genetic studies to clinical psychiatry. Jpn J Psychiatry Neurol 1991 Dec;45(4):819–23 (38 ref.)
Recent twin and family studies have demonstrated a genetic factor in Gilles de la Tourette syndrome, some cases of infantile autism, enuresis, specific reading disability, sleepwalking, night terrors, common fears and anxiety. Family studies have been used to elucidate the nosological relationship of psychiatric disorders; e.g. anorexia nervosa (to affective disorder), Gilles de la Tourette syndrome, and sleeptalking. Advances in biochemical genetics and in enzyme polymorphisms suggest that there are wide individual variations in the adverse effects of drugs and that dosage should be tailored to the individual patient. Recently molecular genetic methods have been introduced to psychiatry, but a major breakthrough in this field appears to be still years away.

Abramovici H see **Blumenfeld Z**

Abramowicz JS see **Santolaya J**

Adelwöhrer NE, Walcher W, Hönigl W: Twin labour complicated by umbilical cord knotting.
Arch Gynecol Obstet 1992;251(2):101–3
We report a case of intrapartum distress of the first twin due to a knot in the umbilical cord. Cord blood flow is reduced according to Poiseuille's law as the knot tightens.

Agashe S see **Gosavi A**

Albert MC, Drummond DS, O'Neill J, Watts H: The orthopedic management of conjoined twins: a review of 13 cases and report of 4 cases.
J Pediatr Orthop 1992 May–Jun;12(3):300–7
We reviewed 13 pairs of conjoined twins treated at Children's Hospital of Philadelphia between 1957 and 1988. Orthopedic problems were related to the ischiopagus type. These included problems related to separation and to the correction of associated deformities. The technique for separation has evolved through improved preoperative imaging and with increased experience, resulting in preservation of a longer and more functional "shared leg." Better preservation of skin to cover both infants and enough of the "shared leg" to insure a functional knee has been possible with posterior iliac osteotomies to close the pelvic ring, as well as the use of tissue expanders.

Alfimova MV see **Ozerova NI**

Altaras MM, Rosen DJ, Ben-Nun I, Aviram R, Bernheim J, Beyth Y: Hydatidiform mole coexisting with a fetus in twin gestation following gonadotrophin induction of ovulation.
Hum Reprod 1992 Mar;7(3):429–31 (13 ref.)
A case is presented of a twin gestation comprising a grossly normal fetus and placenta coexisting with a separate hydatidiform mole which ended in an abortion. Both developed following ovulation induction with human menopausal gonadotrophin and human chorionic gonadotrophin. The literature is reviewed and clinical aspects of this rare entity are discussed.

Amit A see **Blumenfeld Z**

Amso N see **Curtis P**

Anastasio M see **Frediani T**

Appelman Z, Caspi B: Chorionic villus sampling and selective termination of a chromosomally abnormal fetus in a triplet pregnancy. Prenat Diagn 1992 Mar; 12(3):215–7
Transabdominal chorionic villus sampling (CVS) was performed on a patient with a triplet pregnancy. The karyotypes were as follows: 46,XX; 46,XY; and 46,XY/47,XXY. Selective termination was done on the affected fetus successfully by intrathoracic potassium chloride (KCl) injection. Amniocentesis which was performed at the same time confirmed the CVS results, showing the same mosaic findings. Following the procedure, the pregnancy proceeded uneventfully and two normal newborns were delivered at term.

Arabin B see **van Eyck J**

Araki K see **Fukushima Y**

Arlettaz R, Duc G: [Triplets and quadruplets in Switzerland, 1985–1988]
Schweiz Med Wochenschr 1992 Apr 4;122(14):511–6 (Eng. Abstr.) **(Fre)**
To determine the incidence of multiple births and associated morbidity and mortality, we collected in a retrospective study all the multiple births (twins excluded) in Switzerland from 1985 to 1988. In all we followed 77 sets of triplets and 9 sets of quadruplets, representing an annual incidence of 1/3968 births for the triplets and 1/33,947 births for the quadruplets. The incidence of induced pregnancies increased in the period 1985 to 1988. The principal complications were premature contractions and preeclampsia. Only 56% of the children were born in a hospital with a neonatal intensive care unit. The mean gestational age was 33 0/7 weeks (ranging from 25 0/7 to 38 5/7) for the triplets, and 30 5/7 weeks (ranging from 27 5/7 to 36 3/7) for the quadruplets. The mean birthweight was 1787 g (ranging from 560 to 3000 g) for the triplets and 1189 g (ranging from 590 to 1980 g) for the quadruplets. RDS was found to be the principal neonatal pathology (65.5% of triplets and 85.2% of quadruplets) with 18.8% of triplets and 61.8% of quadruplets requiring ventilation. The mortality rate in our study was 8.9% for triplets and 14.7% for quadruplets.

Armstrong RM see **Dubel JR**

Arnal F see **Boulot P**

Arseniuk VV, Ziubritskiĭ NM, Gorban' VG, Bartosh AN: [Acute appendicitis in monozygotic twins]
Klin Khir 1992;(2):70–1 **(Rus)**

Ashizawa T see **Dubel JR**

Atilla E see **Satar M**

Auerbach AD see **Poole SR**

Aviram R see **Altaras MM**

Axelsson O see **Berglund L**

Azoulay P see **Nadal F**

B

Bacolla G see **Mazzoleni S**

Baiget M see **Tizzano EF**

Baker LA, Reynolds C, Phelps E: Biometrical analysis of individual growth curves. Behav Genet 1992 Mar; 22(2):253–64
Longitudinal data for height (length) between birth and 2 years of age were examined for 690 Dutch Registry twin pairs. A two-stage analysis was performed, where individual growth curves were first fit to available data for each subject using a linear multiple regression procedure and estimated individual growth curve parameters were then subjected to multivariate biometrical analysis. Quadratic polynomial curves were found to adequately represent observed growth patterns for the majority of cases (median $R2 = .98$). A specific scalar model of sex limitation best characterized individual variation in growth curve parameters.

AUTHOR SECTION

That is, there was significantly greater genetic variation for boys than for girls in both the predicted length and rate of growth at 1 year of age and the amount of deceleration in individual growth curves across age.

Baker LA, Cesa IL, Gatz M, Mellins C: Genetic and environmental influences on positive and negative affect: support for a two-factor theory.
Psychol Aging 1992 Mar;7(1):158–63
Genetic and environmental etiologies of positive and negative affect, as measured by the Bradburn Affect Balance Scale, were studied to gain understanding of a two-factor theory of well-being. It was hypothesized that negative affect would demonstrate significant genetic and environmental variance and positive affect would be explained primarily by environmental influences. Data were combined from 105 pairs of twins (ages 18–72) and 220 multigenerational families (ages 16–98). Simultaneous model fitting indicated significant heritable effects for negative affect and a significant effect of common environment for twins. Significant effects for positive affect included common environment (for parents and offspring and for twin pairs) and assortative mating. These results, documenting differential genetic and environmental influences on positive and negative affect, provide further support for their being separate components of well-being.

Balsamo V see **Iacono G**

Bandopadhyay D see **Biswas SK**

Bank RA see **Boomsma DI**

Baraitser M see **Scheffer IE**

Barak R see **Freud E**

Barbato M see **Frediani T**

Barnes CL, Frazier GT, Hixson ML: Bilateral congenital fusion of the scaphoid and trapezium in identical twins. Orthopedics 1992 Jun;15(6):739–41

Barr RD see **Halton J**

Bartana A see **Gross-Isseroff R**

Bartley AJ see **Weinberger DR**

Bartnicki J, Meyenburg M, Saling E: Small for gestational age twins: a retrospective analysis of clinical and acid-base status immediately after delivery. Int J Gynaecol Obstet 1992 Feb;37(2):97–8
In a retrospective study on 86 twins born between 1971 and 1990, the clinical and acidity status of small for gestational age twins in cases of uncomplicated labor was analysed and compared with the status of appropriate for gestational age twins. No difference was observed in Apgar score and umbilical blood pH between growth retarded and normal twins. The single fact of growth retardation without other factors of risk during labor has no influence on clinical status of small for gestational age twins.

Bartnicki J, Meyenburg M, Saling E: Time interval in twin delivery--the second twin need not always be born shortly after the first.
Gynecol Obstet Invest 1992;33(1):19–20
In order to evaluate the influence of the time interval on the second twin in twin deliveries, we have used more precise criteria than have been used in the literature to date. The following parameters of the twins were analyzed: normal CTG of the second twin recorded continuously during labor and pH value of the umbilical artery blood after delivery as well as clinical state according to the modified Apgar score. We could not find a general influence of the time interval on pH and clinical status of the second twin. Our results indicate that in cases of uncomplicated twin delivery with a normal cardiotocogram there is no necessity for the second twin to be born as soon as possible after the birth of the first twin.

Bartosh AN see **Arseniuk VV**

Bautrant E see **Nadal F**

Beaufils F see **Bingen EH**

Beekhuis JR, De Bruijn HW, Van Lith JM, Mantigh A: Second trimester amniocentesis in twin pregnancies: maternal haemoglobin as a dye marker to differentiate diamniotic twins.
Br J Obstet Gynaecol 1992 Feb;99(2):126–7
OBJECTIVE: To review the use of a membrane-free haemolysate prepared from maternal blood to distinguish the amniotic sacs at amniocentesis in twin gestation. SETTING: University Hospital, Groningen. METHOD: Haemoglobin solution prepared from maternal blood. SUBJECTS: 63 twin pregnancies having amniocentesis. RESULTS: The fetal loss before 28 weeks was 4%. There was no perinatal mortality. Dye was detected in the second sac in 9 of 24 women tested before 1985 and none of the 39 women since, no malformations could be ascribed to the use of the haemolysate. CONCLUSION: The use of the membrane-free haemolysate is safe, but the technique will probably gradually become redundant because of improved ultrasound.

Behrens O see **Wedeking-Schöhl H**

Beilin LJ see **Williams PD**

Bein G see **Vieregge P**

Bellamy N, Duffy D, Martin N, Mathews J: Rheumatoid arthritis in twins: a study of aetiopathogenesis based on the Australian Twin Registry. Ann Rheum Dis 1992 May;51(5):588–93
The 1980 cohort of the Australian Twin Registry contains 3808 pairs of twins, 258 of whom self reported a diagnosis of rheumatoid arthritis (RA) in one or both subjects. Seventy two pairs were lost to follow up by 1990. The remaining 186 pairs received a self administered questionnaire, followed, if necessary, by telephone interviews to them, their general practitioners, and their specialists. Twenty discordant and three concordant pairs of twins were verified as having RA. The prevalence of RA in this sample was 0.40%. There was an 89% false positive rate for the self reported diagnosis of RA. Pairwise concordance percentages for RA were as follows: monozygotic 21% (95% confidence interval (CI) = 6 to 44), dizygotic 0% (95% CI = 0 to 25). It was concluded that: (a) there is a high false positive rate in self reporting RA; (b) the prevalence of RA in Australia may be less than the 0.8–1.0% often quoted; and (c) genetic factors play some part in the aetiopathogenesis of RA but do not account entirely for its determination.

Ben-Ami M see **Shalev E**

Ben-Ami M see **Zalel Y**

Ben-Hur H see **Blickstein I**

Ben-Nun I see **Altaras MM**

Benshushan A see **Mordel N**

Berg K, Malinow MR, Kierulf P, Upson B: Population variation and genetics of plasma homocyst(e)ine level. Clin Genet 1992 Jun;41(6):315–21
A high level of plasma homocyst(e)ine (H(e)) has been reported to be an independent risk factor for coronary heart disease (CHD), at least in some populations. We have determined the H(e) concentration in the plasma of two series of Norwegians in order to establish a baseline for future analysis of people with CHD. The mean sex- and age-adjusted homocyst(e)ine level was 10.6 (range 4.84–29.88) in one series and 10.5 (range 3.76–40.57) in the other. The H(e) level appeared to be independent of other proven or potential risk factors

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or protective factors with respect to CHD. The intraclass correlation coefficient in monozygotic (MZ) twins is a (possibly inflated) estimate of heritability. We have examined two series of MZ twins. The intraclass correlation coefficient was significant in both series. In one series, the Pearson correlation coefficient was 0.53 and the Kendall correlation coefficient 0.38. In the other, the values were 0.56 and 0.46, respectively. We conclude that in the population examined, H(e) levels exhibit significant heritability.

Berg K see **Tambs K**

Berglund L, Axelsson O: Breech extraction versus cesarean section for the remaining second twin.
Acta Obstet Gynecol Scand 1989;68(5):435-8
All second twins delivered by cesarean section (CS) after vaginal birth of the first twin (n = 38) and all breech-extracted second twins (n = 282) in Sweden during 1973-81 were identified. Data from the medical records of all CS second twins were extracted and compared with breech-extracted second twins from the same departments born within 2 years of the CS twin (n = 25). Second twins delivered after maternal general anesthesia had lower 5-min Apgar scores, irrespective of mode of delivery. Maternal morbidity was substantial in the CS group. The results encourage the use of breech extraction under local anesthesia rather than CS when there is a need for a quick delivery of the second twin and when both alternatives are available.

Berker E, Goldstein G, Lorber J, Priestley B, Smith A: Reciprocal neurological developments of twins discordant for hydrocephalus.
Dev Med Child Neurol 1992 Jul;34(7):623-32 (53 ref.)
Studies of 10 sets of twins discordant for hydrocephalus in early life revealed striking differences in degree and nature of development of verbal vs. non-verbal cognitive functions, birth order, and hand and eye preference. Despite similar (four dizygotic pairs) or identical (six monozygotic pairs) genetic endowment and grossly similar intra- and extra-uterine environmental and socio-economic influences, the consistency of the differences between the hydrocephalic children and their seemingly normal twins indicate systematic differences in pre-, peri- and/or early postnatal organization and development of hemispheric function. Follow-up studies also documented development of above-average intelligence, despite drastically reduced cerebral mantle size in hydrocephalus of early onset. The atypical patterns of development of the non-hydrocephalic twins also confirm previously described qualifications reported in studies of the significance of genetic vs. environmental factors in twins.

Bernheim J see **Altaras MM**

Beyth Y see **Altaras MM**

Bhatia BD see **Biswas SK**

Biancalana V see **Devys D**

Bigelow LB see **Bracha HS**

Bingen EH, Denamur E, Picard B, Goullet P, Lambert-Zechovsky NY, Brahimi N, Mercier JC, Beaufils F, Elion J: Molecular epidemiology unravels the complexity of neonatal Escherichia coli acquisition in twins. J Clin Microbiol 1992 Jul; 30(7):1896-8
Combined analysis of restriction fragment length polymorphism of regions of genes coding for rRNA (ribotyping) and esterase electrophoretic typing was used to document neonatal acquisition of Escherichia coli in twins. Our study shows vertical mother-to-infant transmission of one strain of E. coli to one twin and the development of neonatal septicemia with a distinct nonvirulent carboxylesterase type B1 E. coli strain for the other twin.

Birkenfeld A see **Navot D**

Biswas SK, Gangopadhyay AN, Bhatia BD, Bandopadhyay D, Khanna S: An unusual case of heteropagus twinning. J Pediatr Surg 1992 Jan; 27(1):96-7
A 3-day-old boy baby presented with a cystic umbilical swelling covered mostly by skin and partly by amnion. On the surface, an early embryo-like structure was attached (facial features and limb buds). The deeper aspect of it was composed of large cystic and tubular structures and solid organs resembling liver and spleen. It was labeled as acardiac amorphous parasitic twin, the first of its kind to be reported.

Black SH see **Pergament E**

Blanc B see **Nadal F**

Blanchard H see **Smith BM**

Blickstein I, Ben-Hur H, Borenstein R: Perinatal outcome of twin pregnancies complicated with preeclampsia. Am J Perinatol 1992 Jul;9(4):258-60
Twenty-five mild and 19 severe preeclampsia cases in twin pregnancies (12.5%) were compared to 44 matched for gestational age controls. All three groups were similar with respect to maternal age, intertwin birthweight differences, and rates of abdominal deliveries and low (less than 7) 5-minute Apgar scores. The frequency of primiparas in the severe preeclampsia group was significantly higher compared with controls (p less than 0.03). Severe preeclampsia patients delivered at a significantly earlier gestational age (p less than 0.005) and had a significantly lower mean twin birthweight (p less than 0.003) compared with the mild preeclamptic group. The mean twin birthweight of the severe preeclamptic cases was also significantly lower compared with that of controls. All three neonatal deaths occurred in severely discordant second twins born to severe preeclamptic patients. It is concluded that adverse perinatal outcome is associated with severe but not with mild preeclampsia in twin gestations.

Blickstein I: The definition, diagnosis, and management of growth-discordant twins: an international census survey.
Acta Genet Med Gemellol (Roma) 1991; 40(3-4):345-51
In order to establish a protocol considering the definition, diagnosis, and management of growth-discordant twin gestations, a questionnaire was sent to 96 authors of twin-related obstetric articles. The views of the 61 responders comprise this international census survey. The data suggest that a clear cut-off value for discordancy is still needed; however, the data indirectly supported a two-grade definition, namely, mild (greater than 15% and less than 25% birth-weight disparity) and severe (greater than 25%) growth discordants. Expectant management was advocated by the majority of participants with out-patient follow-up for mild discordants, while severe discordants may preferably be hospitalized. Follow-up should be done by non-stress testing (daily - 2/wk), biophysical profile (1-2/wk), Doppler velocimetry (1/wk - bi-weekly) and sonographic biometry (bi-weekly). The opinions considering termination of pregnancy because of intertwin growth discordancy were divided; however, discordancy per se, was not considered an indication for cesarean

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delivery. An adapted management flowchart that summarizes the survey's data is presented and may be used as a standard for future investigations.

Blickstein I, Zalel Y, Weissman A: Cesarean delivery of the second twin after the vaginal birth of the first twin: misfortune or mismanagement?
Acta Genet Med Gemellol (Roma) 1991; 40(3-4):389-94
The perinatal characteristics of 16 vaginal-abdominal deliveries of twins were evaluated. The primary indication for the cesarean delivery was compound vertex presentation (n = 4), prolapsed umbilical cord (n = 4), transverse lie (n = 7), and mentoposterior face presentation (n = 1). Ther outcome of Twin A was not different from that of Twin B. About 90% of the twins were eventually discharged on time. A significant correlation (R = 0.9722, p less than 0.0003) was found between the reported rates of combined deliveries and cesareans in twins. The data suggest that a higher rate of combined deliveries is expected in practices where abdominal deliveries are performed more often in twin gestations, while in obstetric services with low cesarean rates in twins, combined deliveries seem to be unfortunate occurrences dictated by unexpected intrapartum events.

Blondel B see **Garel M**

Blumenfeld Z, Dirnfeld M, Abramovici H, Amit A, Bronshtein M, Brandes JM: Spontaneous fetal reduction in multiple gestations assessed by transvaginal ultrasound. Br J Obstet Gynaecol 1992 Apr;99(4):333-7
OBJECTIVE: To assess the occurrence of disappearance of one or more of the fetuses in pregnancies which start as multiple gestation. DESIGN: Observational study. SETTING: Infertility section, Rambam Hospital, Haifa. SUBJECTS: 88 women with multiple gestations, established after ovulation induction (54 twin, 26 triplet, five quadruplet, and three quintuplet) and diagnosed by transvaginal ultrasound at 5-6 weeks, in all of whom absorption of at least one gestation sac was detected at follow-up ultrasound scan. INTERVENTIONS: Follow-up by serial transvaginal and later abdominal ultrasound scan throughout pregnancy. RESULTS: Of the 54 twin gestations, 51 ended in the birth of a singleton and three in miscarriage. Of the 26 pregnancies starting as triplets, 12 ended in singleton births, 12 in twins and two miscarried. The five quadruplet gestations resulted in one singleton birth, one set of twins, two triplets, and one ended in late miscarriage. Of the three quintuplet pregnancies, two resulted in the birth of triplets, one of them after spontaneous, the other after iatrogenic fetal reduction. In the third quintuplet pregnancy, one fetus vanished spontaneously and another was subject to iatrogenic reduction, two fetuses survived and were liveborn. Of the 221 fetuses identified 107 (48%) vanished spontaneously. CONCLUSION: Iatrogenic fetal reduction should be delayed until 12 weeks gestation in quadruplet or higher multiple gestations, but is probably not indicated in twin and triplet gestations.

Boccia M see **Reite M**

Boomsma DI, Frants RR, Bank RA, Martin NG: Protease inhibitor (Pi) locus, fertility and twinning. Hum Genet 1992 May;89(3):329-32
In a sample of 160 Dutch twin pairs and their parents, we found that mothers of dizygotic twins had frequencies of the S and Z alleles at the protease inhibitor (Pi) locus that were 3 times higher than a control sample. Mothers of identical twins also had a higher frequency of S than controls. The S allele may thus both increase ovulation rate and enhance the success of multiple pregnancies. There was also an increased frequency of the S allele in fathers of dizygotic twins; however, this may be a secondary effect of assortative mating for family size (indicating by the number of siblings of the parents), for which a correlation of 0.2 was observed. Parents of dizygotic twins came from larger families than parents of monozygotic twins, but no effect of Pi type on family size was seen.

Boomsma DI, Orlebeke JF, van Baal GC: The Dutch Twin Register: growth data on weight and height. Behav Genet 1992 Mar;22(2):247-51
As part of a longitudinal developmental study of newborn and young Dutch twins, data on weight and height are collected. Birth weight and height are available for 3275 pairs; data on growth, for 1390 pairs.

Boomsma DI see **Dolan CV**

Boomsma DI see **Orlebeke JF**

Bordarier C, Robain O: Microgyric and necrotic cortical lesions in twin fetuses: original cerebral damage consecutive to twinning? Brain Dev 1992 May;14(3):174-8
Extensive cortical necrosis associated with malformative microgyric-like lesions and with necrotic lesions of the white matter was observed in two male 25 week fetuses. These cases differed from previously reported cases of brain damage in monozygotic twins: both fetuses were affected and the lesions occurred early in pregnancy, before the end of neuronal migration, thus resulting in a cortical malformation associated with destructive lesions.

Borenstein R see **Blickstein I**

Bottazzo GF see **Christie MR**

Boubli L see **Nadal F**

Bouchard JP see **Roberge C**

Boué J see **Devys D**

Boulot P, Hedon B, Pelliccia G, Sarda P, Montoya F, Mares P, Humeau C, Arnal F, Laffargue F, Viala JL: Favourable outcome in 33 triplet pregnancies managed between 1985-1990.
Eur J Obstet Gynecol Reprod Biol 1992 Jan 31; 43(2):123-9
In this paper, we describe the outcome of 33 triplet pregnancies referred to us between 1985 and 1990. They were managed as follows: management at home as soon as the diagnosis was made, then hospitalization at 28 weeks' gestation. Progesterone and beta-mimetics were administered daily, a cesarean section was always performed. One late abortion occurred at 21 weeks. The rate of prematurity was 90.6%, mean gestational age at delivery was 34.1 +/- 3 weeks, and 62.5% of deliveries occurred between 34 and 37 weeks. Ninety-four fetuses were delivered alive. Mean birth weight was 1880 +/- 410 g. Fetal growth retardation rate was 61.8%, including 28 infants under the third centile and 31 under the 10th centile. Perinatal death rate was 4.16% including 2 in utero deaths and 2 neonate deaths. All infants are healthy except for one child with severe mental retardation. These results show that triplet pregnancies can be safely managed, and that selective first-trimester reduction in triplet pregnancies does not appear to be necessary.

Boulot P, Deschamps F, Hedon B, Laffargue F, Viala JL: Conjoined twins associated with a normal singleton: very early diagnosis and successful selective termination. J Perinat Med 1992; 20(2):135-7
Conjoined twins were diagnosed at 10 weeks of

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gestation in a triplet pregnancy obtained by means of in vitro fertilization. Vaginal scan evidenced craniopagus twins associated with a singleton. Considering the poor and unpredictable prognosis, selective terminations of twins was successfully performed.

Bracha HS, Torrey EF, Gottesman II, Bigelow LB, Cunniff C: Second-trimester markers of fetal size in schizophrenia: a study of monozygotic twins. Am J Psychiatry 1992 Oct;149(10):1355-61
OBJECTIVE: Since the second prenatal trimester is the critical period of massive neural cell migration to the cortex, and fingertip dermal cells migrate to form ridges during this same period, the authors sought to determine whether there are differences in fingertip ridge count in pairs of monozygotic twins discordant for schizophrenia, possibly indicating that a prenatal anatomical insult affected the twins differently. METHOD: The fingertip dermal ridges of 30 pairs of monozygotic twins (23 pairs in which the twins were discordant for schizophrenia and seven pairs in which both twins were normal) were counted by two persons trained in anthropometric research. Intrapair differences in the counts were then measured, and the differences among the pairs of normal twins were compared with the differences among the pairs discordant for schizophrenia. RESULTS: The twins discordant for schizophrenia had significantly greater absolute intrapair differences in total finger ridge count and significantly greater percent intrapair differences than the normal twins; i.e., their fingerprints were significantly less "twin-like." CONCLUSIONS: The study suggests that various second-trimester prenatal disturbances in the epigenesis of one twin in a pair discordant for schizophrenia may be related to the fact that only one of the twins expresses his or her genetic predisposition toward schizophrenia. This is consistent with a "two-strike" etiology of schizophrenia: a genetic diathesis plus a second-trimester environmental stressor.

Bracha HS see **Lohr JB**
Brahim H see **Rachdi R**
Brahimi N see **Bingen EH**
Brambati B, Lanzani A, Sanchioni L, Tului L: Conjoined twins and in utero early exposure to prochlorperazine. Reprod Toxicol 1990;4(4):331-2
Brandes JM see **Blumenfeld Z**
Brandes JM see **Itskovitz-Eldor J**
Brandt ML see **Di Lorenzo M**
Brass LM, Isaacsohn JL, Merikangas KR, Robinette CD: A study of twins and stroke. Stroke 1992 Feb; 23(2):221-3
BACKGROUND AND PURPOSE: Although there are strong genetic contributions to coronary artery disease, only a few studies have considered heritable influences on stroke. METHODS: We investigated the role of genetic factors in stroke using the Twin Registry maintained by the National Academy of Sciences-National Research Council. The registry includes 15,948 male twin pairs born between 1917 and 1927. In 1985, 9,475 twins responded to a mailed questionnaire, which covered vascular risk factors, cardiac events, and stroke. RESULTS: Analysis of twin pairs in which both responded to the questionnaire, and a question on stroke, indicated proband concordance rates of 17.7% for monozygotic pairs and 3.6% for dizygotic pairs (relative risk = 4.3; chi 2 = 4.94, df = 1; p less than 0.05). CONCLUSIONS: This nearly fivefold increase in the prevalence of stroke among the monozygotic compared with the dizygotic twin pairs suggests that genetic factors are involved in the etiology of stroke. The twin study paradigm holds considerable promise for identifying both genetic and environmental influences on stroke.

Breitner JC see **Murphy EA**
Brenci G see **Gedda L**
Brett EM see **Scheffer IE**
Brin I, Zilberman Y: Quintuplets with clefts: follow-up at ten years of age. Cleft Palate Craniofac J 1992 Mar;29(2):186-91
A set of quintuplets, three of which were born with various degrees of oral clefting, were followed up to the age of 10 years. Study models, as well as panoramic and intraoral roentgenograms were collected at ages 5 and 10 years. Cephalometric roentgenograms were added at the age of 10 years. Analysis of the growth charts for height and weight indicated normal somatic development, save for a persistent, albeit diminishing, lag for the two most severely affected siblings. The latter also demonstrated a more vertical craniofacial growth pattern. The dental arch dimensions were within normal range, except for the maxillary and mandibular widths in the two more affected siblings, who also exhibited a delay of one or two stages of dental development in an intersibling comparison. These findings indicate that in the more severely affected siblings, there was only partial growth catch-up at the age of 10 years.

Bronshtein M see **Blumenfeld Z**
Brown TJ see **Christie MR**
Brown WT see **Jenkins EC**
Bukovsky I see **Ron-El R**
Burguet A, Menget A, Mercier M, Schaal JP, Fromentin C, Destuynder R: [Comparison of morbidity and therapeutic load in premature twins and single births] Arch Fr Pediatr 1992 Feb; 49(2):81-6 (7 ref.) (Eng. Abstr.) **(Fre)**
A prospective study was performed in order to compare birth weights, gestational ages at birth, perinatal and neonatal morbidity and mortality rates and therapeutic burdens given to 157 premature twins and 389 premature singletons. This study did not show real differences between premature twins and singletons, as if multiple pregnancies do not lead to other significant pathology than prematurity. The only observed differences were higher rates of breech presentation, wet lung disease, and lower rates of materno-foetal infection and pulmonary hypertension syndrome for premature twins.

Burke JP see **Drack AV**
Burnog T, Floriánová J: [Acardius acephalus as a complication in labor] Cesk Gynekol 1992 Feb; 57(1):44-5 **(Cze)**
Butt K see **Martin NG**

C

Cao A see **Monni G**
Cappelen J see **Stovner LJ**
Cardon LR see **Cherny SS**
Carey G: Simulated twin data on substance abuse [see comments] Behav Genet 1992 Mar;22(2):193-6
Twin data were simulated for use of a new illegal substance. The twin cohort was "measured" yearly at 10 time intervals during the diffusion of the substance throughout the nation. The models used to generate the data are discussed.

Carmelli D see **Lamon-Fava S**
Carmelli D see **Selby JV**
Carmelli D see **Swan GE**
Carnevale I see **Penza B**
Carpenter RJ see **Pergament E**

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Carroccio A see **Iacono G**
Caspi B see **Appelman Z**
Caspi E see **Ron-El R**
Cassidy D see **Christie MR**
Casteels M see **Wanders RJ**
Castelli WP see **Lamon-Fava S**
Cavataio F see **Iacono G**
Ceccamea A see **Frediani T**
Cernoch Z see **Pařízek J**
Cesa IL see **Baker LA**
Chaianov IV see **Ozerova NI**
Charran D, Persad P, Roopnarinesingh S: Adolescent triplet pregnancy. Clin Exp Obstet Gynecol 1992; 19(1):43–4
The occurrence of spontaneous triplet pregnancy among teenagers is a rare event. The present communication describes two cases encountered at the Mt. Hope Maternity Hospital since its inception in 1981.
Chen J see **Gathof BS**
Chen JJ see **Ko YL**
Chen M see **Creinin M**
Cheng ER see **Kazer RR**
Cherny SS, Cardon LR, Fulker DW, DeFries JC: Differential heritability across levels of cognitive ability. Behav Genet 1992 Mar;22(2):153–62
Differences in heritability and shared environmentality across levels of cognitive ability were assessed in a sample of 264 twin pairs tested at 1 year of age and in subsets tested at 2 and 3 years. Using an extension of the DF multiple regression methodology for analyzing twin data, no evidence was found for a linear or quadratic effect of level of cognitive ability on estimates of heritability or shared environmentality.
Cherny SS, DeFries JC, Fulker DW: Multiple regression analysis of twin data: a model-fitting approach. Behav Genet 1992 Jul;22(4):489–97
The multiple regression methodology proposed by DeFries and Fulker (DF; 1985, 1988) for the analysis of twin data is compared with maximum-likelihood estimation of genetic and environmental parameters from covariance structure. Expectations for the regression coefficients from submodels omitting the h2 and c2 terms are derived. Model comparisons similar to those conducted using maximum-likelihood estimation procedures are illustrated using multiple regression. Submodels of the augmented DF model are shown to yield parameter estimates highly similar to those obtained from the traditional latent variable model. While maximum-likelihood estimation of covariance structure may be the optimal statistical method of estimating genetic and environmental parameters, the model-fitting approach we propose is a useful extension to the highly flexible and conceptually simple DF methodology.
Cheshire J see **Crawfurd MD**
Chia KV, Jayaratne T: Locked twins: a successful outcome. Acta Obstet Gynecol Scand 1992 May; 71(4):311–2
Twin interlocking is a rare complication that has a high fetal mortality and morbidity rate. We report a successful outcome of locked twins at 32 weeks gestation following spontaneous labor.
Chitayat D, Meagher-Villemure K, Mamer OA, O'Gorman A, Hoar DI, Silver K, Scriver CR: Brain dysgenesis and congenital intracerebral calcification associated with 3-hydroxyisobutyric aciduria. J Pediatr 1992 Jul;121(1):86–9
Monozygotic male twins born to nonconsanguineous parents had dysmorphic facial features, microcephaly, migrational brain disorder, and congenital intracerebral calcification. They excreted excessive amounts of 3-hydroxyisobutyric acid, a metabolite of valine, and had evidence of impaired oxidative metabolism and metabolic acidosis. The level of 3-hydroxyisobutyrate in stored samples of midtrimester amniotic fluid was found to be high. The association of 3-hydroxyisobutyric aciduria with brain dysgenesis is a newly recognized mendelian disorder; its recurrence in a family at risk is potentially avoidable by prenatal diagnosis.
Christensen B see **Jørgensen AL**
Christian JC see **Lamon-Fava S**
Christian JC see **Reed T**
Christian JC see **Slemenda CW**
Christian JC see **Swan GE**
Christie MR, Tun RY, Lo SS, Cassidy D, Brown TJ, Hollands J, Shattock M, Bottazzo GF, Leslie RD: Antibodies to GAD and tryptic fragments of islet 64K antigen as distinct markers for development of IDDM. Studies with identical twins. Diabetes 1992 Jul;41(7):782–7
Insulin-dependent diabetes mellitus (IDDM) is associated with antibodies to a 64,000-M(r) islet cell protein, at least part of which is identified as glutamic acid decarboxylase (GAD). These antibodies are detected as two distinct antibody specificities to 50,000-M(r) and 37,000/40,000-M(r) tryptic fragments of the autoantigen (50K and 37K antibodies, respectively). We determined the frequencies of antibodies to intact GAD, tryptic fragments of islet 64,000-M(r) antigen, islet cell antibodies (ICAs), and insulin autoantibodies (IAAs) in sera from 58 nondiabetic identical twins of patients with IDDM, of whom 12 subsequently developed diabetes. ICA, antibodies to intact GAD, and those to tryptic fragments were detected at similar frequencies in prediabetic twins (67–75%), but only 25% had IAA. Of 46 twins who remain nondiabetic, GAD antibodies, 50K antibodies, and ICA were detected in 6 (13%), 7 (15%), and 5 (11%), respectively, whereas only 1 (2%) possessed 37K antibodies and 2 (4%) had IAA. Eight of 9 twins with 37K antibodies and all 6 twins with ICA greater than 20 Juvenile Diabetes Foundation U have developed diabetes. Antibodies to GAD are sensitive markers for diabetes development but may also be present in genetically susceptible individuals who are unlikely to develop disease. Antibodies to 37,000/40,000-M(r) fragments of the 64,000-M(r) antigen or high-titer ICA were the best markers for diabetes development in these twins.
Chuffo R see **Mead LJ**
Clayton-Smith J, Read AP, Donnai D: Monozygotic twinning and Wiedemann-Beckwith syndrome. Am J Med Genet 1992 Feb 15;42(4):633–7
Monozygotic (MZ) twinning occurs with relatively high frequency in Wiedemann-Beckwith syndrome (WBS). Ten sets of MZ twins with WBS have been reported. Nine of these have been female and in each case the twins were discordant for the WBS phenotype. The tenth set was male. They were concordant for WBS and both had a duplication of chromosome 15 which they shared in common with their phenotypically normal mother. The WBS gene has been assigned to the locus 11p15 and there appear to be several different genetic mechanisms involving this locus which all give rise to WBS. An imprinting effect for the WBS gene has been proposed because of the transmission of the gene preferentially through the maternal line in some large pedigrees. We describe two further sets of female MZ twins with WBS. One pair is concordant and one discordant for the condition. The possible

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genetic mechanisms involved in the expression of WBS are discussed, with particular reference to twinning, genomic imprinting and X-inactivation which is thought to be associated with the occurrence of MZ twinning in females.

Cohen HL, Shapiro ML, Haller JO, Schwartz D: The multivessel umbilical cord: an antenatal indicator of possible conjoined twinning.
JCU J Clin Ultrasound 1992 May;20(4):278–82

Cohen MM see **Hogge WA**
Comstock CH see **Lee W**
Concannon P see **Malhotra U**
Conover PT see **Dennery PA**
Copeland K see **Pergament E**
Correy JF see **Sonneveld SW**
Cozzi F see **Frediani T**

Crawfurd MD, Cheshire J, Wilson TM, Woodhouse CR: The demonstration of monozygosity in twins discordant for sacral agenesis. J Med Genet 1992 Jun;29(6):437–8

Creinin M, Chen M: Uterine defect in a twin pregnancy with a history of hysteroscopic fundal perforation.
Obstet Gynecol 1992 May;79(5 (Pt 2)):879–80
A woman with a history of hysteroscopic resection of a uterine septum complicated by fundal perforation presented with a term twin pregnancy and spontaneous rupture of membranes. At cesarean, a 7-cm defect was present in the uterine fundus; the edges of the defect were scarred and without bleeding, suggesting a chronic process. Women with a history of fundal perforation during hysteroscopic resection of a uterine septum should be counseled regarding the possibility of a chronic defect and its potential implications. As more uterine septa are resected via the hysteroscope, our understanding of potential long-term complications will increase.

Crenshaw C Jr see **Hogge WA**
Crespo J see **Rúa-Figueroa I**
Cunniff C see **Bracha HS**
Curole DN see **Dickey RP**

Curtis P, Amso N, Parnaby RM, Kibbler CC, Shaw RW: Successful twin pregnancy despite proven intraperitoneal chlamydial infection at implantation.
Br J Obstet Gynaecol 1992 Mar;99(3):263–4

D

D'Alton ME: Antepartum and intrapartum management of multiple pregnancy.
Curr Opin Obstet Gynecol 1991 Dec;3(6):792–5 (14 ref.)
In antepartum management of multiple gestation, this review discusses studies covering the outcome of bedrest, use of ultrasound to assess fetal outcome, management of monoamniotic twins, and outcome of higher-order gestation. Studies comparing modes of delivery are also discussed.

Darrell RW: Superior limbic keratoconjunctivitis in identical twins. Cornea 1992 May;11(3):262–3
The first two cases of superior limbic keratoconjunctivitis occurring in identical twins are reported. In both cases the symptoms began 16 years ago and have never permanently responded to numerous topical medications or to bilateral resection of the superior bulbar conjunctiva.

Datta T, Tirtha M: Caffey's disease in twins [letter]
Indian Pediatr 1991 Nov;28(11):1346–7

Dawson NJ: Siamese calves [letter] Vet Rec 1992 Jul 11;131(2):40

De Bruijn HW see **Beekhuis JR**
DeFries JC see **Cherny SS**
DeFries JC see **Gilger JW**
DeFries JC see **Gillis JJ**
de Geus EC see **Orlebeke JF**
Degoul F see **Penisson-Besnier I**
Deka R see **Steele MW**
Delgado-Escueta AV see **Greenberg DA**
de Maertelaer V see **Donner C**
Denamur E see **Bingen EH**

Dennery PA, Conover PT, Kahn T, Jacobs G, Walsh-Sukys MC: Premature twins with skin lesions and gastric outlet obstruction [clinical conference]
J Pediatr 1992 Apr;120(4 Pt 1):645–51

D'Ercole C see **Nadal F**
Deschamps F see **Boulot P**
Desnuelle C see **Penisson-Besnier I**
Després JP see **Maurière P**
Destuynder R see **Burguet A**
de Vega T see **Rúa-Figueroa I**

Devys D, Biancalana V, Rousseau F, Boué J, Mandel JL, Oberlé I: Analysis of full fragile X mutations in fetal tissues and monozygotic twins indicate that abnormal methylation and somatic heterogeneity are established early in development.
Am J Med Genet 1992 Apr 15-May 1;43(1–2):208–16
The fragile X syndrome, the most common cause of inherited mental retardation, is characterized by unique genetic mechanisms, which include amplification of a CGG repeat and abnormal DNA methylation. We have proposed that 2 main types of mutations exist. Premutations do not cause mental retardation, and are characterized by an elongation of 70 to 500 bp, with little or no somatic heterogeneity and without abnormal methylation. Full mutations are associated with high risk of mental retardation, and consist of an amplification of 600 bp or more, with often extensive somatic heterogeneity, and with abnormal DNA methylation. To analyze whether the latter pattern is already established during fetal life, we have studied chorionic villi from 10 fetuses with a full mutation. In some cases we have compared them to corresponding fetal tissues. Our results indicate that somatic heterogeneity of the full mutation is established during (and possibly limited to) the very early stages of embryogenesis. This is supported by the extraordinary concordance in mutation patterns found in 2 sets of monozygotic twins (9 and 30 years old). While the methylation pattern specific of the inactive X chromosome appears rarely present on chorionic villi of normal females, the abnormal methylation characteristic of the full mutation was present in 8 of 9 male or female chorionic villi analyzed. This suggests that the methylation mechanisms responsible for establishing the inactive X chromosome pattern and the full mutation pattern are, at least in part, distinct. Our results validate the analysis of chorionic villi for direct prenatal diagnosis of the fragile X syndrome.

Diab D see **Joshi RK**

Dickey RP, Olar TT, Curole DN, Taylor SN, Rye PH: The vanishing pregnancy? [letter; comment]
Fertil Steril 1992 May;57(5):1140–2

Di Lorenzo M, Brandt ML, Veilleux A: Sirenomelia in an identical twin: a case report.
J Pediatr Surg 1991 Nov;26(11):1334–6
Sirenomelia, or the mermaid syndrome, is the most extreme example of the caudal regression syndrome. It invariably presents with lower limb fusion, sacral and pelvic bony anomalies, absent external genitalia, anal imperforation, and renal agenesis or dysgenesis. Because of the resultant oligohydramnios, these infants most often have Potter's facies and pulmonary hypoplasia. There are approximately 300 cases reported in the literature, 15% of which are

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associated with twinning, most often monozygotic. The syndrome of caudal regression is thought to be the result of injury to the caudal mesoderm early in gestation. It has been suggested that the association of the most extreme form of caudal regression, sirenomelia, with monozygotic twinning may represent developmental arrest of the primitive streak, with creation of a second primitive streak that gives rise to the usually normal twin. The embryology of the various presentations of the caudal regression syndrome may be further delineated by studying infants with this dramatic and fatal syndrome.

Dinari G see **Freud E**

Dirnfeld M see **Blumenfeld Z**

Doig JC, McComb JM, Reid DS: Incessant atrial tachycardia accelerated by pregnancy. Br Heart J 1992 Mar;67(3):266–8

A 24 year old patient presented with incessant atrial tachycardia during the course of a twin pregnancy. Medical treatment slowed the ventricular response without restoring sinus rhythm. During labour the tachycardia spontaneously reverted to sinus rhythm. Subsequently the same arrhythmia was documented with a slower ventricular response than during pregnancy.

Dolan CV, Molenaar PC, Boomsma DI: Decomposition of multivariate phenotypic means in multigroup genetic covariance structure analysis.
Behav Genet 1992 May;22(3):319–35

Observed differences in phenotypic means between groups such as parents and their offspring or male and female twins can be decomposed into genetic and environmental components. The decomposition is based on the assumption that the difference in phenotypic means is due to a difference in the location of the normal genetic and environmental distributions underlying the phenotypic individual differences. Differences between the groups in variance can be accommodated insofar as they are due to differences in unique variance or can be modeled using a scale parameter. The decomposition may be carried out in the standard analysis of genetic covariance structure using, for instance, LISREL. Illustrations are given using simulated data and twin data relating to blood pressure. Other possible applications are mentioned.

Dolphin Z see **Ron-El R**

Dommaschk J, Gross-Fengels W, Fischbach R: [Genetic disposition of atherosclerosis? Case report of a monozygotic pair of twins] Aktuelle Radiol 1992 May;2(3):153–5 (7 ref.) (Eng. Abstr.) **(Ger)**

The case of a 64-year old pair of monozygotic male twins with atherosclerotic disease of the iliaca arteries is described and the related literature dealing with the genetics of atherosclerosis is reviewed. Both patients had corresponding clinical history and physical findings and showed an almost identically localised and a high degree of stenosis of the right iliac artery of similar appearance. In both cases percutaneous transluminal angioplasty (PTA) was performed prior to placement of Plamaz stents. The well-known risk factors of atherosclerosis are hypertension, hypercholesterolaemia, cigarette smoking, diabetes mellitus, obesity, physical inactivity, and psychosocial influences. However, a number of atherosclerotic lesions cannot be accounted for solely on the basis of current knowledge of these risk factors. The reported case produces evidence of genetic factors as contributing components in the pathogenesis of established atherosclerotic disease.

Donnai D see **Clayton-Smith J**

Donner C, de Maertelaer V, Rodesch F: Multifetal pregnancy reduction: comparison of obstetrical results with spontaneous twin gestations.
Eur J Obstet Gynecol Reprod Biol 1992 May 13; 44(3):181–4

Thirty-two multifetal pregnancies were reduced to twin gestations. Our control group was composed of 32 spontaneous twin gestations. The comparison of these two groups did not show that the procedure altered obstetrical results as far as duration of gestation, birth weight and rate of dismaturity are concerned.

Dorembus D see **Mordel N**

Doretti V see **Penza B**

Dornon L: Delivery of second twin four days after the first [letter] Am Fam Physician 1992 Apr; 45(4):1554

Drack AV, Traboulsi EI, Maumenee IH: Progression of retinopathy in olivopontocerebellar atrophy with retinal degeneration. Arch Ophthalmol 1992 May; 110(5):712–3

Drack AV, Burke JP, Pulido JS, Keech RV: Transient punctate lenticular opacities as a complication of argon laser photoablation in an infant with retinopathy of prematurity [letter]
Am J Ophthalmol 1992 May 15;113(5):583–4

Dreyer V see **Jørgensen AL**

Drugan A see **Isada NB**

Drugan A see **Itskovitz-Eldor J**

Drummond DS see **Albert MC**

Dubas F see **Penisson-Besnier I**

Dubel JR, Armstrong RM, Perryman MB, Epstein HF, Ashizawa T: Phenotypic expression of the myotonic dystrophy gene in monozygotic twins. Neurology 1992 Sep;42(9):1815–7

Phenotypic expression of the myotonic dystrophy (DM) gene is highly variable even within the same family. To investigate the importance of genetic and nongenetic factors on phenotypic variability, we studied phenotypic expression in two DM twin sets with monozygosity confirmed by DNA polymorphism analysis. Our observations suggest that genetic factors are primarily responsible for modulating pleiotropic expression of the DM gene.

Duc G see **Arlettaz R**

Duffy D see **Bellamy N**

Duffy DL: A population-based study of bronchial asthma in adult twin pairs [letter] Chest 1992 Aug; 102(2):654

Duffy DL see **Emmerson BT**

Dungan JS see **Shulman LP**

Durner M see **Greenberg DA**

Dussault J see **Mauriège P**

E

Eaves L see **Tambs K**

Eaves LJ see **Heath AC**

Eaves LJ see **Hewitt JK**

Eaves LJ see **Kendler KS**

Eaves LJ see **Kessler RC**

Eaves LJ see **Meyer JM**

Eaves LJ see **Truett KR**

Echevarría S see **Rúa-Figueroa I**

Edagawa M see **Fukushima Y**

Eganhouse DJ: Fetal monitoring of twins.
J Obstet Gynecol Neonatal Nurs 1992 Jan-Feb; 21(1):17–27

Perinatal mortality for twins is five to seven times that for singletons. This disparity is related to a variety of risk factors that may alter the health of the woman and her fetuses. With twin pregnancies,

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antepartum surveillance frequently begins earlier in gestation. Although extensive antepartum and intrapartum nursing care is required for women with twins, little has been published in the nursing literature to provide direction for caregivers. Factors such as zygosity and gestational age influence monitoring in twin pregnancies. Current clinical and technical nursing issues are reviewed and related to the antepartum and intrapartum electronic fetal monitoring of twins.

Elias S see **Shulman LP**

Elion J see **Bingen EH**

Elliott JP, Radin TG: Quadruplet pregnancy: contemporary management and outcome. Obstet Gynecol 1992 Sep;80(3 (Pt 1)):421–4

Quadruplets are occurring more frequently as assisted-reproduction techniques improve fertility in couples previously unable to conceive. Ten quadruplet pregnancies cared for in one perinatal practice over 5 years had excellent outcome. The mean gestational age at delivery was 32.5 weeks, compared with approximately 30 weeks in the literature. There were no perinatal deaths and no long-term morbidity. Our patients were compared with a series of 57 consecutive patients with quadruplet pregnancies monitored by a home monitoring system. Parity of 1 or more appeared to improve outcome. Pregnancy-induced hypertension occurred in nine of our pregnancies and necessitated delivery in seven instances. Fetal distress was responsible for two deliveries and uncontrollable preterm labor for only one. Key points in our management protocol include prophylactic use of low-dose aspirin, home contraction monitoring, use of terbutaline pump tocolysis, and bed rest at home starting at 16 weeks.

Emile J see **Penisson-Besnier I**

Emmerson BT, Nagel SL, Duffy DL, Martin NG: Genetic control of the renal clearance of urate: a study of twins. Ann Rheum Dis 1992 Mar; 51(3):375–7

Although a genetic predisposition to gout has been recognised for centuries, its mechanism has never been defined. This study was designed to determine whether this factor might be the renal clearance of urate, which is an important determinant of the concentration of urate in serum. In this study the renal clearance of urate was examined in 37 pairs of normouricaemic twins to determine whether this resemblance was genetically mediated. Monozygotic twins had more similar values of urate clearance and fractional excretion of urate than dizygotic twins. The heritability of the renal clearance of urate was estimated as about 60% (95% confidence limits 40 to 100%), whereas the heritability of the fractional excretion of urate was 87% (confidence limits 45 to 100%). This study supports the hypothesis that genetic factors exert an important control on the renal clearance of urate, which determines some of the familiarity of hyperuricaemia and gout.

Endo H see **Okamura K**

Endo S see **Tsuboi T**

Epstein HF see **Dubel JR**

Erickson M see **Hewitt JK**

Eriksson AW see **Orlebeke JF**

Evans MI, Littmann L, King M, Fletcher JC: Multiple gestation: the role of multifetal pregnancy reduction and selective termination. Clin Perinatol 1992 Jun; 19(2):345–57 (33 ref.)

With the increased use of fertility agents and the transfer of multiple embryos, multifetal gestations have increased in number. As the number of fetuses increases, the probability of premature birth and delivery does. The role of multifetal pregnancy reduction and selective termination is reviewed.

Evans MI see **Isada NB**

Ezra Y see **Mordel N**

F

Fabsitz RR see **Lamon-Fava S**

Fabsitz RR see **Selby JV**

Fabsitz RR see **Swan GE**

Falletti I see **Frediani T**

Fekih MA see **Rachdi R**

Fine B see **Pergament E**

Fischbach R see **Dommaschk J**

Fletcher JC see **Evans MI**

Floriánová J see **Burnog T**

Fournier G see **Mauriège P**

Frants RR see **Boomsma DI**

Fraser D see **Picard R**

Frazier GT see **Barnes CL**

Frederiksen MC, Keith L, Sabbagha RE: Fetal reduction: is this the appropriate answer to multiple gestation? Int J Fertil 1992 Jan–Feb;37(1):8–14 (37 ref.)

Frederiksen MC see **Pergament E**

Frediani T, Falletti I, Lucarelli S, Leo C, Cozzi F, Ceccamea A, Barbato M, Anastasio M: [Paucity of interlobular bile ducts in twins and maternal abuse of psychopharmaceuticals during pregnancy] Pediatr Med Chir 1992 May–Jun;14(3):329–33 (Eng. Abstr.) **(Ita)**

We report the case of twins with intrahepatic cholestasis in "paucity of interlobular bile ducts". Both the children presented an associated cardiac defect even if dissimilar and a transient tubulopathy. Despite the presence of these alterations we suppose that these cases can be included among the group of rare nonsyndromic paucity of interlobular bile ducts. The different extent of the pathology in the two patients suggest a toxic etiology which could have struck more severely the twin who were less protected by the utero–placental barrier. In the literature reports we found some cases of extrahepatic biliary atresia related with maternal amphetamine addiction, but no cases of intrahepatic atresia. As during pregnancy the mother had abused of a number of drugs and in particular of amphetamine, we suppose that the amphetamine addiction can account for the hepatic pathology.

Freud E, Barak R, Ziv N, Leiser A, Dinari G, Mor C, Zer M: Familial chronic recurrent pancreatitis in identical twins. Case report and review of the literature. Arch Surg 1992 Sep;127(9):1125–8 (57 ref.)

Familial presentation of chronic recurrent pancreatitis in childhood is rare. The etiology of this illness is obscure, and its hereditary properties are not well defined. Simultaneous occurrence of chronic recurrent pancreatitis in identical twins with the same clinical presentation and similar typical pancreatographic abnormalities is exceptional. Twin sisters, aged 9 years, were admitted to the hospital because of recurrent attacks of pancreatitis. Ultrasound examination revealed an enlarged irregular pancreatic duct in both girls, and endoscopic retrograde cholangiopancreatography showed a distorted duct with multiple strictures and dilatations similar to a "chain of lakes" pattern. Both patients underwent longitudinal pancreatojejunostomy within a month. The therapeutic regimen and preoperative and surgical treatment of such patients are discussed, as is the

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optimal timing of intervention.

Frieden FJ see **Ordorica SA**

Friedman JH see **Pueschel SM**

Friedrich HJ see **Vieregge P**

Fries MH, Goldberg JD, Golbus MS: Treatment of acardiac-acephalus twin gestations by hysterotomy and selective delivery. Obstet Gynecol 1992 Apr; 79(4):601-4

The acardius syndrome is a rare complication of monozygotic twin pregnancies, occurring once in 35,000 births. The outcome is invariably fatal for the acardiac twin and for 50-75% of the normal twins. We present a surgical approach to the treatment of this problem involving hysterotomy and selective delivery of the acardiac twin, which we have used in five cases. In the first case, placental abruption shortly after the procedure led to fetal death. The next two cases resulted in cesarean delivery of the remaining healthy singleton at 35 weeks' gestation. The fourth and fifth cases were delivered at 27 and 28 weeks' gestation, respectively, the first because of preterm rupture of membranes 2 weeks after the procedure and the second because of partial placental abruption 8 weeks after surgery; both of these infants are now doing well. There were no residual maternal complications. We conclude that hysterotomy has direct applicability in the management of these high-risk pregnancies.

Fromentin C see **Burguet A**

Fukushima Y, Onitsuka T, Kotani Y, Uchino H, Shokyu Y, Araki K, Edagawa M, Nakamura K, Yonezawa T, Shibata K, et al: [A successful treatment of coronary arteriovenous fistula with Symbas procedure] Kyobu Geka 1992 Mar;45(3):254-7 (Eng. Abstr.) **(Jpn)**

A successful treatment of coronary arteriovenous fistula with intraoperative echocardiogram and Symbas procedure is presented. The patient, a 2-year-old male, had been suffering from concealed congestive heart failure from his birth. The cardiac catheterization and angiogram revealed coronary arteriovenous fistula from LAD to right ventricle with large coronary aneurysm. In the operation, no fistula vessels were noted on the cardiac surface. Then, the intraoperative echocardiography was performed, and the fistula pour into right ventricle with aneurysm was found in the myocardium. The fistula was closed with Symbas procedure, and excellent closure could be checked with the intraoperative echocardiogram, too. After this operation, he got well under anticoagulant treatment with "ticlopidine".

Fulker DW see **Cherny SS**

G

Gagné R see **Roberge C**

Gaĭdaĭ IuV: [The synchronous manifestation of the ophthalmological symptoms of Reiter's disease in twin brothers] Voen Med Zh 1991 Nov;(11):32-3 **(Rus)**

Gangopadhyay AN see **Biswas SK**

Garel M, Blondel B: Assessment at 1 year of the psychological consequences of having triplets. Hum Reprod 1992 May;7(5):729-32

The purpose of this study was to assess the psychological difficulties encountered by mothers 1 year after the birth of triplets. Twelve mothers entered the study having delivered triplets in a public hospital in Paris. Nine pregnancies had been initiated after in-vitro fertilization (IVF) or gamete intra-Fallopian transfer (GIFT), two after ovarian stimulation and one was spontaneous. The method consisted of tape-recorded semi-structured interviews at the mothers' homes. At 1 year, a majority of mothers reported considerable fatigue and stress. In most cases, home help was no longer provided by social services or by relatives. A majority suffered from social isolation and had difficulties in going out because of a lack of help, and inquisitive looks and questions from other people. Most mothers said that having triplets placed a strain on the marital relationship. The relationship with the children was often disturbed. Mothers reported that it was difficult to give adequate attention to the three children at the same time. Most of them tended to become emotionally detached. Eight mothers expressed psychological difficulties and three of them were treated for depression. Families with triplets should be provided with increased help, special attention, counselling and support, either at home, in clubs or in special clinics.

Gathof BS, Sahota A, Gresser U, Chen J, Stambrook PJ, Tischfield JA, Zöllner N: Identification of a splice mutation at the adenine phosphoribosyltransferase locus in a German family. Klin Wochenschr 1990 Dec 30;69(24):1152-5

We examined the molecular basis of adenine phosphoribosyltransferase (APRT) deficiency in homozygous-deficient, identical twin brothers who were born to non-consanguineous German parents. DNA was isolated from blood, and the APRT gene was amplified by PCR, subcloned into M13, and sequenced completely. A single T insertion between bases 1831-1832 or 1832-1833 was identified. This alters the consensus sequence at the exon 4 - intron 4 spice donor site and leads to aberrant splicing. The same mutation has been described previously in two affected brothers from Belgium, and the Indianapolis group has also identified it in two other, unrelated Caucasian patients. Thus, this mutation may be a common cause of APRT deficiency in the Caucasian population.

Gatz M see **Baker LA**

Gedda L, Messinetti S, Brenci G, Ronzani G: An Italian army twin register. Acta Genet Med Gemellol (Roma) 1991; 40(3-4):263-7

Geggel RL: Supravalvar aortic stenosis: discordance in monozygotic twins and reduction in severity of obstruction during childhood. Pediatr Cardiol 1992 Jul;13(3):170-2

A monozygotic twin boy with supravalvar aortic stenosis had reduction in the degree of obstruction with body growth. His twin brother had normal cardiac anatomy. To our knowledge, this is the first report of improvement without intervention in a patient with supravalvar aortic stenosis and of discordance of supravalvar aortic stenosis in monozygotic twins.

Giacomantonio JM see **Walton JM**

Gilger JW, Pennington BF, Green P, Smith SM, Smith SD: Reading disability, immune disorders and non-right-handedness: twin and family studies of their relations. Neuropsychologia 1992 Mar; 30(3):209-27

Geschwind and colleagues discussed associations among learning disorders, immune disorders and non-right-handedness. In this study, we examined the associations between reading disability (RD) and both immune disorders (ID) and non-right-handedness (NRH) in family and twin samples (total N = 1731 cases) identified through an RD proband. We also conducted co-segregation analyses to ascertain the degree to which NRH, ID

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and RD were biologically related. There was little evidence for an overall association between RD and NRH. There was not convergent evidence across all four samples for an association between RD and ID, although we did find an association between RD and ID in two of four samples. Nor was there strong support for a subtype where RD and NRH, or RD and ID, co-segregate in families. These data suggest that the associations postulated by Geschwind and colleagues are not robust in RD samples, although we cannot completely rule out the possibility of an RD plus ID subtype.

Gilger JW, Pennington BF, DeFries JC: A twin study of the etiology of comorbidity: attention-deficit hyperactivity disorder and dyslexia.
J Am Acad Child Adolesc Psychiatry 1992 Mar; 31(2):343-8
Monozygotic and dizygotic twin pairs, in which at least one member of each pair is reading disabled (RD), were assessed for attention-deficit hyperactivity disorder (ADHD). Within pair cross-concordances of the RD and ADHD qualitative diagnoses for monozygotic twins were larger than for dizygotic twins, although not significantly so (p less than 0.10). Thus, the data suggest that RD and ADHD may be primarily genetically independent. However, trends in the data and subtype analyses suggest that in some cases RD and ADHD may occur together because of a shared genetic etiology and that a genetically mediated comorbid subtype may exist.

Gilger JW see **Gillis JJ**
Gilger JW see **Reite M**
Gillis DA see **Walton JM**

Gillis JJ, Gilger JW, Pennington BF, DeFries JC: Attention deficit disorder in reading-disabled twins: evidence for a genetic etiology.
J Abnorm Child Psychol 1992 Jun;20(3):303-15
In order to assess the genetic etiology of attention deficit hyperactivity disorder (ADHD), the basic regression model for the analysis of selected twin data (DeFries & Fulker, 1985, 1988) was fitted to questionnaire data (DICA: Diagnostic Interview for Children and Adolescents; Herjanic, Campbell, & Reich, 1982) for 37 identical and 37 fraternal twin pairs tested in the Colorado Reading Project. Results of this analysis suggest that ADHD is highly heritable. Moreover, adjusting DICA scores for either IQ or reading performance differences did not substantially change parameter estimates. In future analyses of larger data sets, distinguishing between possible subtypes of attentional problems (e.g., ADD with or without hyperactivity) may facilitate tests of more searching etiological questions.

Ginsberg NA see **Pergament E**

Girolami A, Simioni P, Sartori MT, Zanardi S: Oral contraceptives caused thrombosis in a monoovular twin with protein C deficiency, while the other, without medication, remained asymptomatic [letter]
Blood Coagul Fibrinolysis 1992 Feb;3(1):119-20

Glick RP see **Kazer RR**

Goble MM, Mosteller M, Moskowitz WB, Schieken RM: Sex differences in the determinants of left ventricular mass in childhood. The Medical College of Virginia Twin Study. Circulation 1992 May; 85(5):1661-5
BACKGROUND. Left ventricular (LV) hypertrophy is a predictor of cardiovascular events in adults and has been observed in children and adolescents with hypertension. We wanted to establish the determinants of LV mass in normotensive preadolescent children. Our objectives were 1) to produce a simplified and generalizable model of the clinical variables that determine normal cardiac growth during childhood and 2) to understand better why males have an increased LV mass relative to females, even as children.
METHODS AND RESULTS. In a group of 243 eleven-year-old children, we analyzed anthropometric, hemodynamic, and echocardiographic data to define which variables were predictors of echocardiographically determined LV mass. Stepwise regression was used to predict LV mass overall, by sex, and by body size (body mass index). Overall, LV mass was directly related to weight, male sex, and systolic and diastolic blood pressure and inversely related to resting heart rate and skin-fold thicknesses. Systolic blood pressure was a determinant in boys but not in girls. Heart rate was a weak inverse correlate in both sexes. When the data were analyzed by body mass index quartile, weight was the sole predictor of LV mass in the largest children.
CONCLUSIONS. We conclude that in normotensive preadolescent children, 1) weight, but not pondersity, is a strong predictor of LV mass; 2) body fat is negatively associated with LV mass; 3) boys have an increased LV mass relative to girls; and 4) boys and girls have similar anthropometric determinants and may have different hemodynamic determinants. Our data suggest that body size, and in particular lean body mass, explains much of the variability in cardiac growth seen in children. The influence of hemodynamic variables seems to be more limited. Our findings are of general interest because, although hypertensive heart disease is well described, the early developmental stages are not well understood.

Godfrey C see **Scheffer IE**
Golbus MS see **Fries MH**
Golbus MS see **Jenkins EC**
Gold JM see **Ragland JD**
Goldberg J see **Jenkins EC**
Goldberg JD see **Fries MH**
Goldberg M see **Ron-El R**
Goldberg TE see **Ragland JD**
Goldstein G see **Berker E**
Goldstein L see **Reite M**
Goldstein N see **Navot D**
Gorban' VG see **Arseniuk VV**

Gosavi A, Agashe S, Phansopkar M: Acardius amorphus monster--a case report.
Indian J Pathol Microbiol 1991 Oct;34(4):302-4

Gottesman II see **Bracha HS**
Goullet P see **Bingen EH**
Gragg LA see **Shah YG**
Greco P see **Loverro G**

Green MF: Neuropsychological performance in the unaffected twin [letter; comment]
Arch Gen Psychiatry 1992 Mar;49(3):247

Green P see **Gilger JW**

Greenberg DA, Durner M, Delgado-Escueta AV: Evidence for multiple gene loci in the expression of the common generalized epilepsies. Neurology 1992 Apr;42(4 Suppl 5):56-62 (24 ref.)
Our knowledge of genetic factors influencing expression of epilepsy has increased enormously in the last 10 years. In this article, we review the advantages and problems of population genetics studies, twin studies, and linkage analysis as applied to the study of epilepsy. Population genetics, twin studies, and linkage analysis have placed the evidence for the genetic basis of the generalized epilepsies on a firm foundation. The identification and confirmation of a gene locus involved in the expression of juvenile myoclonic epilepsy and other

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forms of generalized epilepsy is proof of at least one genetic influence. We also review the evidence that other, still-undiscovered genetic factors might influence the expression of other forms of generalized epilepsy.

Gresser U see **Gathof BS**

Greve B see **von der Stein B**

Grevengood C see **Shulman LP**

Gross-Fengels W see **Dommaschk J**

Gross-Isseroff R, Ophir D, Bartana A, Voet H, Lancet D: Evidence for genetic determination in human twins of olfactory thresholds for a standard odorant.
Neurosci Lett 1992 Jul 6;141(1):115-8
Olfactory thresholds for four odorants were determined in groups of monozygotic and dizygotic human twins. Odorants were presented in an ascending dilution series in odorless solvent, using a three-way forced choice method. For two of the tested odorants, 5 alpha-androst-16-en-3-one and isoamyl acetate, the thresholds showed a strong genetic component. This was demonstrated by respective values of 0.78 and 0.73 for the intraclass correlation difference, and of $z = 3.69$ and $z = 2.71$ in a within-pair difference analysis. The results for isoamyl acetate are novel, and suggest that genetic polymorphism in the affinity of odorant receptor proteins contributes to the (nearly normal) threshold distribution for this odorant.

Grossman Z see **Nagar H**

Guay AT see **Rubin RA**

H

Haller JO see **Cohen HL**

Halton J, Whitton A, Wiernikowski J, Barr RD: Disseminated Langerhans cell histiocytosis in identical twins unresponsive to recombinant human alpha-interferon and total body irradiation.
Am J Pediatr Hematol Oncol 1992 Aug;14(3):269-72
Monozygotic twin boys presented at 1 year of age with seborrheic skin rash, otorrhea, and hepatosplenomegaly. Skin biopsy confirmed Langerhans cell histiocytosis. Treatment with conventional antineoplastic drugs and with calf thymus extract was ineffective. The disease remained refractory to recombinant human alpha-interferon and to low-dose total body irradiation, and the children died between 3 and 3 1/2 years of age.

Hamada H, Oki A, Tsunoda H, Kubo T: Prenatal diagnosis of holoprosencephaly by transvaginal ultrasonography in the first trimester.
Asia Oceania J Obstet Gynaecol 1992 Jun; 18(2):125-9
A diamniotic-monochorionic pregnancy of twins was revealed by transvaginal ultrasonography: one fetus with holoprosencephaly was diagnosed at 11 weeks of gestation. This is the first case of holoprosencephaly diagnosed in the first trimester. Prenatal diagnosis of this anomaly in the first trimester is now possible by transvaginal ultrasonography.

Hammar B see **Nagar H**

Hanazaki H see **Tanabe H**

Hankins GD see **Neal GS**

Harley JB see **Reichlin M**

Harper A: Prenatal diagnosis of cystic adenomatoid malformation of the lung in a twin pregnancy.
Ulster Med J 1992 Apr;61(1):102-5

Harris JR, Pedersen NL, McClearn GE, Plomin R, Nesselroade JR: Age differences in genetic and environmental influences for health from the Swedish Adoption/Twin Study of Aging.
J Gerontol 1992 May;47(3):P213-20
This cross-sectional study explored the etiology of variability in self-reported health. The sample comprises adult twins participating in the Swedish Adoption/Twin Study of Aging and includes identical (MZ) and fraternal (DZ) twin pairs who have been reared together or reared apart. Two different components of overall health status are analyzed: an index of chronic health problems and self-rated health. Height and weight were included to assess the representativeness of the twin data. Individual differences increased across age for both measures of health, and there were significant age differences in the genetic and environmental etiologies of this variation. Genetic variance showed a twofold increase for chronic illness up until age 70. Environmental influences during adulthood appear important later in life. For self-rated health, genetic effects were important in the older age groups; however, the increase in total variation is predominantly due to unique environmental influences.

Hartlove C see **Hogge WA**

Hashimoto Y see **Tanabe H**

Hawa M see **Lo SS**

Hayashi AH see **Walton JM**

Hays T see **Poole SR**

Heath A see **Kessler RC**

Heath AC, Martin NG: Genetic differences in psychomotor performance decrement after alcohol: a multivariate analysis. J Stud Alcohol 1992 Apr; 53(3):262-71
We reanalyzed data on the decline in performance on a battery of psychomotor tests, after a standard dose of ethanol (0.75 g/kg body weight), of 206 same-sex twin pairs. Principal components analysis identified two orthogonal factors. The first factor was strongly associated with increased body sway, self-rated intoxication and unwillingness to drive, and reported low average weekly alcohol consumption, but showed a very weak association with blood alcohol concentration. The second factor had high loadings on tests assessing psychomotor coordination, was strongly associated with blood alcohol concentration, but was unrelated to willingness to drive or self-rated intoxication. Multivariate genetic analysis indicated independent genetic and environmental determination of differences in sensitivity to the effects of alcohol on these two factors.

Heath AC, Neale MC, Kessler RC, Eaves LJ, Kendler KS: Evidence for genetic influences on personality from self-reports and informant ratings.
J Pers Soc Psychol 1992 Jul;63(1):85-96
Self-report data on Extraversion (E) and Neuroticism (N), together with ratings by the co-twin, were obtained from a sample of 826 adult female twin pairs ascertained through a population-based twin register. Data were analyzed using a model that allowed for the contributions to personality ratings of the rater's personality (rater bias) as well as of the personality of the person being rated. For E, but not for N, significant rater bias was found, with extraverted respondents tending to underestimate, and introverted respondents tending to overestimate, the Extraversion of their co-twins. Good agreement between self-reports and ratings by the respondent's co-twin was found for both E and N. Substantial genetic influences were found for both personality traits, confirming findings from genetic studies of personality that have relief only on self-reports of respondents.

Heath AC see **Kendler KS**

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Heath AC see **Meyer JM**
Heath AC see **Truett KR**
Hebing B, Uhlenbrock D, Wesseler K: [Pachygyria and laminar heterotopic tissue. A rare case of unique expression of a neuronal migration disorder in twins] Monatsschr Kinderheilkd 1992 Apr;140(4):220–2 (Eng. Abstr.) **(Ger)**
We report of 16 year old twinsisters with a neuronal migration disorder, twin I with mental retardation and focal epileptic seizures on MRI showed general pachygyria, laminar subcortical heterotopia and mildly dilated lateral ventricles, whereas twin II whose first symptom was a cerebral seizure only showed a focal pachygyria and laminar subcortical heterotopia; the location of pachygyria corresponded to the epileptogenic focus. The morphological expression seems to correspond with the severeness of the clinical features. Genetic as well as exogenic factors must be assumed to be causative for the migration anomalies.
Hedon B see **Boulot P**
Heinrich K see **von der Stein B**
Hemrika DJ see **van de Geijn EJ**
Hepp H see **Strowitzki T**
Hersh JH, Verdi GD: Natal teeth in monozygotic twins with Van der Woude syndrome.
Cleft Palate Craniofac J 1992 May;29(3):279–81 (24 ref.)
The second monozygotic twin pair concordant for Van der Woude syndrome is reported. Clinical manifestations of this autosomal dominant clefting syndrome included bilateral lower lip pits, cleft lip, and cleft palate. Both sibs were found to have a natal tooth. No other cases of Van der Woude syndrome with this feature have been described previously. It is uncertain whether the presence of a natal tooth in this instance represents a low-frequency association of this disorder. However, it appears more likely that its occurrence was incidental, since natal teeth have been reported before in twin pairs as an isolated finding.
Hewitt JK, Silberg JL, Neale MC, Eaves LJ, Erickson M: The analysis of parental ratings of children's behavior using LISREL. Behav Genet 1992 May; 22(3):293–317
A common procedure for assessing children's behavior is to obtain parental ratings of the child. Since the ratings obtained are a function of both parent and child, disentangling the child's phenotype from that of the rater becomes an important methodological problem. For the analysis of genetic and environmental contributions to children's behavior, solutions to this are available when multiple raters, e.g., two parents, rate multiple children, e.g., twins. This paper describes and illustrates simple LISREL models for the analysis of parental ratings of children's behavior. We show how the assumption that mothers and fathers are rating the same behavior in children can be contrasted with the weaker alternative that parents are rating correlated behaviors. Given the stronger assumption, which appears adequate for ratings of children's internalizing behavior problems, the contribution of rater bias and unreliability may be separated from the shared and nonshared environmental components of variation in a behavior genetic analysis.
Hildisch S see **Strowitzki T**
Hirsch BA, Sentz KK, McGue M: Genetic and environmental influences on baseline SCE.
Environ Mol Mutagen 1992;20(1):2–11
Previous population-based studies have identified subject characteristics that, when combined, can account for approximately 20% of the observed interindividual variation in baseline SCE rates. In the present investigation, a classic twin study design was used to address the issue of the relevance of genetic factors to baseline SCE rates and to identify other demographic, hematologic, and exposure variables predictive of SCE rate. Questionnaire data and peripheral blood samples from 136 monozygotic and 88 dizygotic twins (age range: 25–81 years) were obtained. Among the large number of variables examined, univariate analyses (including ANOVA tests for the categorical variables and Pearson-product moment correlations for the quantitative variables) revealed smoking status, coffee drinking status, sex, white blood cell count, and absolute numbers of lymphocytes and neutrophils to have significant effects on SCE rates. A stepwise multiple regression analysis showed that together, smoking and coffee drinking status entered at the first step accounted for 21% of the observed variance in SCE, with a further 6% being contributed by the demographic and hematologic variables added in subsequent steps. Finally, the twin analyses showed that after adjustment of the data set for smoking and other significant predictors, genetic factors accounted for approximately 30% of the variation in SCE rates. Thus these data support the hypothesis of a significant genetic influence on baseline SCE.
Hixson ML see **Barnes CL**
Hoar DI see **Chitayat D**
Hogge JS see **Hogge WA**
Hogge WA, Hogge JS, Keene CL, Pupkin M, Schwartz S, McGillis C, Hartlove C, Crenshaw C Jr, Cohen MM: Chorionic villus sampling: the University of Maryland experience. Md Med J 1992 Jun; 41(6):523–5
The University of Maryland was the first program in the state to offer chorionic villus sampling (CVS). Since the program's beginning in 1984, 998 patients have been seen with successful sampling in 99.1 percent, using both transcervical and transabdominal approaches. The overall loss rate was quite low (2.3 percent), and no increased risk of birth defects was seen. These observations demonstrate that CVS provides a safe and accurate alternative to amniocentesis.
Holden C: Twin study links genes to homosexuality [news] Science 1992 Jan 3;255(5040):33
Hollands J see **Christie MR**
Hönigl W see **Adelwöhrer NE**
Horwath E: Regarding the use and accuracy of the family history method [letter] Am J Psychiatry 1992 Aug;149(8):1122–3
Hoskins IA see **Ordorica SA**
Hougaard K see **Jørgensen PH**
Howard ER see **Silveira TR**
Hshieh YY see **Ko YL**
Humeau C see **Boulot P**
Hyanek J see **Wanders RJ**

I

Iacono G, Carroccio A, Montalto G, Cavataio F, Balsamo V: Gastroesophageal reflux: clinical presentation in two pairs of twins.
J Pediatr Gastroenterol Nutr 1992 May;14(4):460–2
Ibba RM see **Monni G**
Ino H see **Shitsukawa K**
Ironside W see **Munro JM**
Isaacsohn JL see **Brass LM**
Isada NB, Sorokin Y, Drugan A, Johnson MP, Zador

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I, Evans MI: First trimester interfetal size variation in well-dated multifetal pregnancies.
Fetal Diagn Ther 1992;7(2):82-6
Sonographic measurements of multifetal pregnancy for dating and growth are considered identical to singleton pregnancies until the second trimester. Observations in 57 patients having triplets or more, who were referred for first trimester multifetal pregnancy reduction, suggest considerable size variability both within an individual pregnancy and among pregnancies of the same gestational ages (GAs). These data are unique because the GAs are precisely known, because the pregnancies were established by assisted reproductive technology. We observed a greater standard deviation at 12 and 13 weeks of GA. We also observed significant interfetal variation within an individual pregnancy. Because multifetal pregnancy reduction was performed, follow-up of any given fetus to term was not possible. We conclude that for high-order multiple gestations: (1) interfetal size variability begins much earlier than often stated; (2) differences in the degree of variability can be observed among different pregnancies of the same gestational age and within the same pregnancy, and (3) there is a trend for increasing variability with increasing gestational age.

Itskovitz-Eldor J, Drugan A, Levron J, Thaler I, Brandes JM: Transvaginal embryo aspiration—a safe method for selective reduction in multiple pregnancies. Fertil Steril 1992 Aug;58(2):351-5
OBJECTIVE: To evaluate pregnancy outcome after transvaginal selective embryo aspiration and to compare the results with those reported previously with other techniques for selective abortion. DESIGN: Retrospective case series. SETTING: University-based in vitro fertilization (IVF) program. PATIENTS: Nineteen women with multiple pregnancy who conceived after ovulation induction or IVF/gamete intrafallopian transfer. INTERVENTION: Transvaginal ultrasound-guided aspiration of the embryo(s) was performed at 7 to 8 weeks of gestation. MAIN OUTCOME MEASURES: Early and late complications related to the procedure, outcome of pregnancy, and birth weight. RESULTS: In 18 cases, the initial number of embryos (3 to 7) was reduced to two. In 1 case, the number of embryos was reduced from 4 to 3. None of the remaining fetuses vanished after the procedure. One patient delivered at 25 weeks and all other patients delivered healthy, viable infants (a pregnancy loss rate of 5.3%). CONCLUSIONS: Transvaginal embryo aspiration in early gestation appears to be a simple and relatively safe procedure for selective termination in patients with high-order multiple pregnancy. The cumulative loss rate of selective termination procedures previously reported by others is three times higher than the loss encountered in our series. This earlier procedure may be more acceptable to patients from emotional and religious points of view.

Iurov IuB see **Ozerova NI**
Iwamoto M see **Okamura K**
Iznak AF see **Ozerova NI**

J

Jacobs G see **Dennery PA**
James I see **Newnham JP**
Järnerot G see **Lindberg E**
Jayaratne T see **Chia KV**

Jenkins EC, Brown WT, Schonberg S, Krawczun MS, Goldberg J, Golbus MS: Prenatal detection of fra(X)(q27.3) in female identical twins: reliability of low level cytogenetic prenatal expression in females. Am J Med Genet 1992 Apr 15-May 1;43(1-2):128-35
Recently, we detected fra(X)(q27.3) in amniocyte cultures from female identical twins. The pregnant woman did not exhibit fra(X)(q27.3) in whole blood cultures but was the sister of 2 affected brothers. DNA marker analyses showed that she was a carrier of FRAXA. Amniotic fluid cultures (AFCs) from twins A and B exhibited the fragile X [fra(X)] chromosome, but the level of cytogenetic expression was very low in twin A's AFCs. DNA marker studies indicated both twins were carriers of FRAXA. Peripheral umbilical blood sample (PUBS) cultures exhibited fra(X)(q27.3) at a frequency of about 10% for both twins. DNA fingerprinting indicated that the twins were identical, confirming the clinical impression, with a very thin separating amniotic membrane. To our knowledge, this is the only report of prenatal fra(X)(q27.3) detection in female identical twins, and the second report of identical twin detection [Rocchi et al., 1985]. We have diagnosed prenatally fra(X)(q27.3) in 5 female fetuses using AFCs. The average fra(X) frequency was 4% for these positive female fetuses with a range of 0.5% to 8.5%. Follow-up whole blood studies confirmed our original results at an average fra(X) frequency of 25%. In conclusion: 1. Low frequencies, perhaps 1 or 2%, or a few positive cells in AFCs, are likely to increase in magnitude when confirmed in whole blood cultures either pre- or postnatally. 2. It appears likely that the risk is low for false positive results in AFCs when low frequencies of fra(X)(q27.3) are encountered.

Jensen OH: Doppler velocimetry in twin pregnancy. Eur J Obstet Gynecol Reprod Biol 1992 Jun 16; 45(1):9-12
The flow velocity waveform profile in the umbilical artery was measured in 50 pairs of twins during the last week before birth. A significant association was found between high resistance indicies and occurrence of late fetal heart rate decelerations; the higher the resistance, the more frequent the decelerations. Further, the connection between high resistance in the circulation of the umbilical artery and low birth weight was confirmed. Flow velocity measurements in the umbilical artery seem to be a valuable tool in identifying twin fetuses suffering from placental insufficiency.

Jimenez D see **Lamon-Fava S**
Johnson MP see **Isada NB**
Johnson TR see **Luke B**
Johnston CC Jr see **Slemenda CW**
Jones DW see **Weinberger DR**

Jongbloet PH: Aging gametes in relation to incidence, gender, and twinning in Down syndrome [letter] Am J Med Genet 1992 Apr 1;42(6):855

Jørgensen AL, Philip J, Raskind WH, Matsushita M, Christensen B, Dreyer V, Motulsky AG: Different patterns of X inactivation in MZ twins discordant for red-green color-vision deficiency.
Am J Hum Genet 1992 Aug;51(2):291-8
Two female identical twins who were clinically normal were obligatory heterozygotes for X-linked deuteranomaly associated with a green-red fusion gene derived from their deuteranomalous father. On anomaloscopy, one of the twins was phenotypically deuteranomalous while the other had normal color vision. The color vision-defective twin had two sons with normal color vision and one deuteranomalous son. X-inactivation analysis was done with the highly informative probe M27 beta. This probe

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detects a locus (DXS255) which contains a VNTR and which is somewhat differentially methylated on the active and inactive X chromosomes. In skin cells of the color vision-defective twin, almost all paternal X chromosomes with the abnormal color-vision genes were active, thereby explaining her color-vision defect. In contrast, a different pattern was observed in skin cells from the woman with normal color vision; her maternal X chromosome was mostly active. However, in blood lymphocytes, both twins showed identical patterns with mixtures of inactivated maternal and paternal X chromosomes. Deuteranomaly in one of the twins is explained by extremely skewed X inactivation, as shown in skin cells. Failure to find this skewed pattern in blood cells is explained by the sharing of fetal circulation and exchange of hematopoietic precursor cells between twins. These data give evidence for X inactivation of the color-vision locus and add another MZ twin pair with markedly different X-inactivation patterns for X-linked traits.

Jørgensen PH, Pedersen CB, Hougaard K: [Epiphyseal dysplasia of the femoral head in monozygotic twins] Ugeskr Laeger 1992 Apr 20;154(17):1189-90 (Eng. Abstr.) **(Dan)**

We present monozygotic twin girls with bilateral epiphyseal dysplasia of the femoral head (DECF). DECF is a rare condition reported mainly in boys before the age of five years. It consists of a state of non-ossification characterized by flattening and fragmentation of the femoral head. It is invariably followed by 100% healing. The differential diagnosis is primarily from Legg-Calvé-Perthes' disease (LCPD), which, however, occurs mainly after the fifth year followed by aggravation of the symptoms during the following 18 months. This condition leads to secondary degenerative changes in several hips. Although DECF and LCPD may be two entities of the same disease it is necessary to distinguish clinically between them, as the prognosis and the treatment are different.

Joshi RK, Majeed-Saidan MA, Abanmi A, Diab D: Aplasia cutis congenita with fetus papyraceus. J Am Acad Dermatol 1991 Dec;25(6 Pt 1):1083-5

Josi K see **Penisson-Besnier I**

Jurcak-Zaleski S see **Lee W**

K

Kahn T see **Dennery PA**

Kaprio J, Viken R, Koskenvuo M, Romanov K, Rose RJ: Consistency and change in patterns of social drinking: a 6-year follow-up of the Finnish Twin Cohort. Alcohol Clin Exp Res 1992 Apr; 16(2):234-40

In 1975 and again in 1981, all adult twins in the population-based Finnish Twin Cohort were administered postal questionnaires yielding data on self-reported frequency and quantity of alcohol use. The longitudinal results provide information on the age-to-age stability of social drinking patterns among 13,404 (twin) individuals aged 18 to 43 at baseline; model-fitting the cross-temporal consistency of the twins' reported alcohol use yields unique estimates of the contribution of genetic and environmental factors to their individual age-to-age stabilities. Mean consumption levels did not change between 1975 and 1981. Patterns of social drinking were more stable in older (aged 24-43 at baseline) than younger (aged 18-23 at baseline) adult twins, and were more stable among men than women. Heritabilities were significant at both baseline and follow-up for all three alcohol measures in both genders and both age groups, with a median magnitude of 0.48. Both longitudinal genetic and environmental covariances were significant, and both were generally higher among older pairs. Genetic covariances (median magnitude = 0.68) were significantly higher than environmental covariances (median = 0.36). Analyses of absolute changes in alcohol use revealed heritable influences on the disposition to change. We conclude that genes contribute to both consistency and change in patterns of alcohol use from early to midadulthood.

Kaprio J see **Teikari JM**

Kawasaki K see **Tanabe H**

Kazer RR, Cheng ER, Unterman TG, Glick RP: Maternal plasma concentrations of insulin-like growth factor-I (IGF-I) and human placental lactogen (hPL) in twin pregnancies. Acta Genet Med Gemellol (Roma) 1991; 40(3-4):383-7

Maternal plasma IGF-I and hPL concentrations were examined in 10 singleton pregnancies and in 11 twin gestations near term. hPL concentrations were higher in the twin pregnancies (14.4 +/- 2.4 micrograms/l vs 6.9 +/- 0.9 micrograms/l, P less than 0.02). In contrast, plasma IGF-I concentrations were similar in the singleton and twin pregnancies (533 +/- 45 micrograms/l vs 572 +/- 60 micrograms/l, respectively). IGF-I concentrations failed to correlate with hPL concentrations in either group separately or when all subjects were considered together. These data do not support the hypothesis that maternal IGF-I secretion is an hPL-dependent process.

Keech RV see **Drack AV**

Keene CL see **Hogge WA**

Keith D see **Luke B**

Keith L see **Frederiksen MC**

Keith L see **Luke B**

Kelly RW see **Newnham JP**

Kendler KS, Neale MC, Kessler RC, Heath AC, Eaves LJ: Major depression and generalized anxiety disorder. Same genes, (partly) different environments? Arch Gen Psychiatry 1992 Sep; 49(9):716-22

Bivariate twin analysis can determine the extent to which two disorders share common genetic, familial environmental, or individual-specific environmental risk factors. We applied this method to lifetime diagnoses of major depression and generalized anxiety disorder as assessed at personal interview in a population-based sample of 1033 pairs of female same-sex twins. Three definitions of generalized anxiety disorder were used that varied in minimum duration (1 vs 6 months) and in the presence or absence of a diagnostic hierarchy. For all definitions of generalized anxiety disorder, the best-fitting twin model was the same. Familial environment played no role in the etiology of either condition. Genetic factors were important for both major depression and generalized anxiety disorder and were completely shared between the two disorders. A modest proportion of the nonfamilial environmental risk factors were shared between major depression and generalized anxiety disorder. Within the limits of our statistical power, our findings suggest that in women, the liability to major depression and generalized anxiety disorder is influenced by the same genetic factors, so that whether a vulnerable woman develops major depression or generalized anxiety disorder is a result of her environmental experiences.

Kendler KS, Neale MC, Kessler RC, Heath AC, Eaves

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LJ: Generalized anxiety disorder in women. A population-based twin study.
Arch Gen Psychiatry 1992 Apr;49(4):267-72
Little is known about the role of familial and genetic factors in the etiology of generalized anxiety disorder (GAD), a new disorder first proposed in DSM-III. We examine this question in 1033 female-female twin pairs from a population-based registry. Both members in each twin pair were "blindly" assessed by structured psychiatric interview. Our results suggest the following: (1) GAD is a moderately familial disorder; (2) the tendency for GAD to run in families seems to be due largely or entirely to genetic factors shared between relatives rather than to the effects of the familial environment; (3) the heritability of GAD, estimated at around 30%, is modest, with the remainder of the variance in liability resulting from environmental factors not shared by adult twins; (4) the heritability of GAD cannot be explained solely by the occurrence of GAD only during episodes of major depression or panic disorder; and (5) the etiologic role of genetic factors is probably similar in GAD with a 1- vs a 6-month minimum duration of illness.

Kendler KS, Neale MC, Kessler RC, Heath AC, Eaves LJ: A population-based twin study of major depression in women. The impact of varying definitions of illness. Arch Gen Psychiatry 1992 Apr; 49(4):257-66
Although depression aggregates in families, the degree to which this aggregation results from genetic vs environmental factors remains uncertain. We examined this question in 1033 female-female twin pairs from a population-based registry. Both members of each twin pair were "blindly" assessed by structured psychiatric interview. Nine commonly used definitions of major depression, which produced life-time prevalence rates ranging from 12% to 33%, were examined. For all definitions, the results of model fitting to twin correlations suggested that the liability to depression results from genetic factors and environmental experiences unique to the individual. For seven of the definitions, the estimated heritability of liability was similar, ranging from 33% to 45%. For the two definitions that included only primary cases of depression, the heritability was lower (21% to 24%). The results document that in women (1) genetic factors play a substantial, but not overwhelming, role in the cause of depression; (2) the tendency for depression to aggregate in families results largely from shared genetic and not from shared environmental factors; (3) except for definitions that exclude secondary cases, the magnitude of genetic influence is similar in broadly and narrowly defined forms of major depression; and (4) most environmental experiences of causative importance for depression are those not shared by members of an adult twin pair.

Kendler KS, Neale MC, Kessler RC, Heath AC, Eaves LJ: The genetic epidemiology of phobias in women. The interrelationship of agoraphobia, social phobia, situational phobia, and simple phobia.
Arch Gen Psychiatry 1992 Apr;49(4):273-81
In 2163 personally interviewed female twins from a population-based registry, the pattern of age at onset and comorbidity of the simple phobias (animal and situational)--early onset and low rates of comorbidity--differed significantly from that of agoraphobia--later onset and high rates of comorbidity. Consistent with an inherited "phobia proneness" but not a "social learning" model of phobias, the familial aggregation of any phobia, agoraphobia, social phobia, and animal phobia appeared to result from genetic and not from familial-environmental factors, with estimates of heritability of liability ranging from 30% to 40%. The best-fitting multivariate genetic model indicated the existence of genetic and individual-specific environmental etiologic factors common to all four phobia subtypes and others specific for each of the individual subtypes. This model suggested that (1) environmental experiences that predisposed to all phobias were most important for agoraphobia and social phobia and relatively unimportant for the simple phobias, (2) environmental experiences that uniquely predisposed to only one phobia subtype had a major impact on simple phobias, had a modest impact on social phobia, and were unimportant for agoraphobia, and (3) genetic factors that predisposed to all phobias were most important for animal phobia and least important for agoraphobia. Simple phobias appear to arise from the joint effect of a modest genetic vulnerability and phobia-specific traumatic events in childhood, while agoraphobia and, to a somewhat lesser extent, social phobia result from the combined effect of a slightly stronger genetic influence and nonspecific environmental experiences.

Kendler KS, Silberg JL, Neale MC, Kessler RC, Heath AC, Eaves LJ: Genetic and environmental factors in the aetiology of menstrual, premenstrual and neurotic symptoms: a population-based twin study.
Psychol Med 1992 Feb;22(1):85-100
Symptoms during the premenstrual and menstrual phases of the female reproductive cycle were assessed in 827 pairs of female same-sex twins from a population-based registry. By conventional factor analysis, premenstrual and menstrual symptoms were relatively independent of one another and of baseline 'neurotic' symptoms (i.e. anxiety, depression and somatization). Familial resemblance for menstrual and premenstrual symptoms was due solely to genetic factors with heritability estimates of 39.2% and 35.1%, respectively. Multivariate genetic analysis revealed distinct genetic and environmental factors for menstrual, premenstrual and neurotic symptoms. The genes and individual-specific experiences that predispose to premenstrual symptoms appear to be largely distinct from those which predispose either to menstrual or to neurotic symptoms. The generalizability of these results may be limited because only a modest number of premenstrual and menstrual symptoms were assessed, all by retrospective self-report.

Kendler KS see **Heath AC**

Kendler KS see **Kessler RC**

Kerkhofs M see **Linkowski P**

Kessler RC, Kendler KS, Heath A, Neale MC, Eaves LJ: Social support, depressed mood, and adjustment to stress: a genetic epidemiologic investigation.
J Pers Soc Psychol 1992 Feb;62(2):257-72
A survey of 821 same-sex female twin pairs from a population-based registry assessed 8 dimensions of social support and social integration. Twin analyses documented significant common environmental influences on 5 of these 8 measures and significant genetic influences on 5 of the 8. A decomposition of the multiplicative association between support and a measure of stressful life experiences in predicting depressed mood--an association typically interpreted as providing evidence for a stress-buffering effect of social support--shows clearly that it is the environmental and genetic factors that cause support, rather than support itself, that buffer the effects of stress on mood in most cases. We discuss the implications of this result for future research on the relationship

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between social support and psychopathology.

Kessler RC see **Heath AC**

Kessler RC see **Kendler KS**

Khanna S see **Biswas SK**

Kibbler CC see **Curtis P**

Kiely JL: Time trends in neonatal mortality among twins and singletons in New York City, 1968-1986. Acta Genet Med Gemellol (Roma) 1991; 40(3-4):303-9

The objective of this study was to compute yearly neonatal mortality rates (NMRs) in twins and compare these to rates in singletons during the same time period. The focus was on time trends in birthweight-specific twin mortality in the birth population of New York City during the years 1968 to 1986. The study population was all twin livebirths greater than or equal to 500 g birthweight (N = 45,605), with a comparison group of all singleton livebirths in the same birthweight range (N = 2,191,144). Data came from the New York City Department of Health's computerized vital records on livebirths and infant deaths. Between 1968 and 1986 the crude NMR declined 39% in twins and 47% in singletons. In twins there were birthweight-specific declines of 69% to 84% between 1000 g and 2499 g. However, there was only a 19% decline in the twin NMR over 2499 g. This contrasts with a 50% decline in the singleton NMR over 2499 g. In New York City, modern medical care has been remarkably successful in lowering the NMR in low birthweight twins. However, more effort must be made to understand the etiology of perinatal problems in twins with birthweights greater than 2500 g.

Kiely JL, Kleinman JC, Kiely M: Triplets and higher-order multiple births. Time trends and infant mortality. Am J Dis Child 1992 Jul;146(7):862-8

OBJECTIVES--To describe changes in rates of higher-order multiple births (triplets and higher) between 1972 and 1989, to compare infant mortality rates in infants of higher-order multiple births and singletons born from 1983 through 1985, and to compare infant mortality rates among higher-order multiples born from 1983 through 1985 with rates among those born in 1960. RESEARCH DESIGN--Population-based analysis of live births (1972 through 1989) and infant deaths (1960 and 1983 through 1985) in the United States. The rate of higher-order multiple births was calculated per 100,000 live births. DATA SOURCE--Computerized national natality files for 1972 through 1989 and national linked birth/infant death data sets for 1960 and 1983 through 1985 from the National Center for Health Statistics, Centers for Disease Control. POPULATION--Live births to white and black women in the United States. INTERVENTIONS--None. MAIN RESULTS--Between 1972 through 1974 and 1985 through 1989 the rate of higher-order multiple births increased by 113% among infants of white mothers and by 22% among infants of black mothers. In whites the increase was mostly age specific and was not due to the upward shift in the maternal age distribution. The increase was particularly large in white women aged 30 through 34 years (152%) and 35 through 39 years (165%) and in more highly educated mothers. In blacks the modest increase in the rate of higher-order multiple births was mostly due to an upward shift in the maternal age distribution. From 1983 through 1985, mortality of infants of higher-order multiple births was about 15 times that of singletons. This was due almost entirely to the lower birth weight distribution of infants of higher-order multiple births. Their weight-specific mortality compared favorably with that of singletons. At 500 through 999 g, mortality was about the same. In weight categories between 1000 and 1999 g, mortality rates in higher-order multiple births were much lower: weight-specific relative risks ranged from 0.30 to 0.73. Between 1960 and 1983 through 1985 infant mortality in higher-order multiple births declined by about 50%. CONCLUSIONS--It is likely that much of the increase in the incidence of higher-order multiple births is due to the rise in the use of ovulation-inducing drugs for the treatment of infertility. This increase and the decline in mortality risk have created a much greater need for medical and social services for infants of higher-order multiple births and their families.

Kiely M see **Kiely JL**

Kierulf P see **Berg K**

Kikkawa K see **Wakita Y**

King M, McDonald E: Homosexuals who are twins. A study of 46 probands. Br J Psychiatry 1992 Mar; 160:407-9

Forty-six homosexual men and women who were twins took part in a study of their sexuality and that of their co-twin. Discordance for sexual orientation in the monozygotic pairs confirmed that genetic factors are insufficient explanation of the development of sexual orientation. There was a high level of shared knowledge of sexual orientation between members of twin pairs, and a relatively high likelihood of sexual relations occurring with same sex co-twins at some time, particularly in monozygotic pairs. The implications of these results for the study of the origins of sexual orientation and for twin research are discussed.

King M see **Evans MI**

Kleinman JC see **Kiely JL**

Ko YL, Tang TK, Chen JJ, Hshieh YY, Wu CW, Lien WP: Idiopathic hypertrophic cardiomyopathy in identical twins. Morphological heterogeneity of the left ventricle. Chest 1992 Sep;102(3):783-5

We report a pair of identical twins with HC with varying extent of left ventricular hypertrophy and some degree of left ventricular outflow tract obstruction. The diagnosis of identical twins was based on the same sex, blood typings, HLA typings and hybridization patterns to four hypervariable DNA probes. Identical twins are derived from a single zygote and are genetically homogeneous human beings. The present report suggests that heterogeneity in the morphologic expression of HC may not be solely attributed to genetic factors. Environmental factors also may play an important role.

Kodama T see **Nakaoka Y**

Korell M see **Strowitzki T**

Koskenvuo M see **Kaprio J**

Koskenvuo M see **Teikari JM**

Kotani Y see **Fukushima Y**

Kozanoglu MN see **Satar M**

Kozich V see **Wanders RJ**

Krawczun MS see **Jenkins EC**

Krone S see **Nerlich A**

Kruithoff C see **Seoud MA**

Kubo T see **Hamada H**

Kurzel RB, Ott H Jr: Cerclage, tocolysis and antibiotics for premature rupture of the membranes in previable twins. A case report. J Reprod Med 1992 Mar;37(3):289-90

Premature rupture of the membranes developed in a pregnancy with a previable twin gestation. In the absence of infection, aggressive management of

AUTHOR SECTION

premature rupture of the membranes, consisting of cerclage, tocolysis and antibiotics, salvaged the second twin by delaying delivery for five weeks.

L

Laberge JM see **Smith BM**
Laffargue F see **Boulot P**
Lai R see **Monni G**
Lambert-Zechovsky NY see **Bingen EH**
Lamon-Fava S, Jimenez D, Christian JC, Fabsitz RR, Reed T, Carmelli D, Castelli WP, Ordovas JM, Wilson PW, Schaefer EJ: The NHLBI Twin Study: heritability of apolipoprotein A-I, B, and low density lipoprotein subclasses and concordance for lipoprotein(a). Atherosclerosis 1991 Nov; 91(1-2):97-106
Heritability of plasma apolipoprotein (apo) A-I, apo B, and low density lipoprotein (LDL) subclasses and concordance for lipoprotein(a) excess were assessed in 109 monozygotic (MZ) and 113 dizygotic (DZ) twin pairs participating in the third examination of the National Heart, Lung, and Blood Institute Twin Study. The intraclass correlation coefficient for apo A-I was significantly greater in MZ twins (0.56) than in DZ twins (0.37, P less than 0.05); however, apo A-I showed an unequal distribution in the two groups, with significantly greater total variance in DZ twins. Therefore the among-component estimate of genetic variance was applied, and the results indicated no significant heritability for apo A-I (P = 0.59). MZ and DZ twins had equal apo B variance. The intraclass correlation coefficient for apo B in MZ twins (0.71) was significantly higher than in DZ twins (0.25) (P less than 0.0001), indicating significant heritability for apo B. Plasma apo A-I levels were significantly correlated with alcohol intake (P less than 0.0001), body mass index (BMI, P less than 0.0001), and physical activity, while apo B levels were significantly correlated only with BMI (P less than 0.05). After plasma apo A-I and apo B concentrations were adjusted for all of these variables and for cigarette smoking, the analysis of variance and intraclass correlation coefficients remained virtually unchanged. The LDL type intraclass correlation coefficient was higher in MZ twins (0.58) than in DZ twins (0.32, P less than 0.005); however, greater total variance for this parameter in DZ twins was observed and after applying the among component estimate of genetic variance, no significant heritability of LDL type was observed. After adjustment for covariate effects the conclusions were not changed. Only 8.4% of MZ twin pairs, as compared with 26.7% of DZ twin pairs, were discordant for elevated lipoprotein(a) on gradient gels (P less than 0.0001). Our data indicate that there is a strong heritability for plasma apo B and lipoprotein(a), with only weak evidence for heritability of LDL type or plasma apo A-I levels within this population sample.
Lancet D see **Gross-Isseroff R**
Lang KD see **Plante Y**
Lanzani A see **Brambati B**
LaRue A see **Swan GE**
Lau HY see **Walton JM**
Laurini GP see **Penza B**
Lawlor-Klean P see **Mead LJ**
Leach RE, Ney JA, Ory SJ: Selective embryo reduction of an interstitial heterotopic gestation. Fetal Diagn Ther 1992;7(1):41-5
A case of combined interstitial and intrauterine pregnancy is described. The sonographic finding of a thick myometrial bridge separating a twin pregnancy may be unique to heterotopic cornual pregnancies and is illustrated. The method of selective embryo reduction with potassium chloride to terminate the interstitial pregnancy without damage to the intrauterine pregnancy is also described. The intrauterine pregnancy continued successfully to term.
Lee W, Comstock CH, Jurcak-Zaleski S: Prenatal diagnosis of adrenal hemorrhage by ultrasonography. J Ultrasound Med 1992 Jul; 11(7):369-71
Lefebvre G see **Vauthier-Brouzes D**
Leighton BC: Dental arch development in a set of triplets. Eur J Orthod 1992 Aug;14(4):273-9
A set of male triplets, of whom the two youngest appear to be identical, has been followed and recorded on plaster casts from 1 month to young adulthood. Measurements of tooth size, arch breadth, length, and circumference, as well as arch relationship, were made at five stages of development. There was a general tendency for the identical pair to become more similar after puberty, and less like their dizygotic brother. Attention is drawn to the potential value of a longitudinal study on a sample of sets of similar sex triplets each containing two identical individuals.
Leiser A see **Freud E**
Lenti C: Autism and epilepsy: organic connections? [letter; comment]
J Am Acad Child Adolesc Psychiatry 1992 Mar; 31(2):370
Leo C see **Frediani T**
Leslie RD see **Christie MR**
Leslie RD see **Lo SS**
Lestienne P see **Penisson-Besnier I**
Lettieri L see **Wolf EJ**
Levene MI, Wild J, Steer P: Higher multiple births and the modern management of infertility in Britain. The British Association of Perinatal Medicine. Br J Obstet Gynaecol 1992 Jul;99(7):607-13
OBJECTIVE: To assess prospectively the number of triplet and higher multiple births born in 1989 and their methods of conception. To assess obstetric factors and the effect of these pregnancies on neonatal medical services. DESIGN: All consultant paediatricians received a monthly card asking whether they had been involved in the management of triplet and higher multiple pregnancies delivered after 22 weeks gestation. Detailed questionnaire sent to those giving a positive response. SETTING: British Paediatric Surveillance Unit organized mailings to all members of the British Paediatric Association working in the British Isles. SUBJECTS: 156 pregnancies resulting in 482 babies (143 triplets, 12 quadruplets and 1 quintuplet set). These data were compared to nationally collected OPCS data. MAIN OUTCOME MEASURES: Method of conception, obstetric performance, neonatal outcome. RESULTS: Of the 156 pregnancies, 47 (31%) were conceived naturally, 52 (34%) had ovarian stimulation (usually with clomiphene or gonadotrophins) 37 (24%) had IVF and 17 (11%) GIFT. All quadruplet and quintuplet pregnancies were established after assisted reproduction. Mothers who had had IVF were significantly older than those who had ovulation induction alone. The median gestation at birth was 33 weeks. Overall 181 (40%) of the babies required intensive care for a median duration of 5 days. The perinatal mortality of the triplets alone and quads and quins together was 70 and 104 per 1000 respectively. CONCLUSIONS: Assisted

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reproduction is the major cause of triplets and higher multiple births and ovarian stimulation is the single most important technique currently in use. These babies are very likely to be born pre term and make considerable demands on neonatal intensive care facilities.

Levron J see **Itskovitz-Eldor J**

Lien WP see **Ko YL**

Lim CT see **Wong KK**

Lindberg E, Magnusson KE, Tysk C, Järnerot G: Antibody (IgG, IgA, and IgM) to baker's yeast (Saccharomyces cerevisiae), yeast mannan, gliadin, ovalbumin and betalactoglobulin in monozygotic twins with inflammatory bowel disease. Gut 1992 Jul;33(7):909-13

To assess whether dietary antigens play a role in inflammatory bowel disease, 26 monozygotic twin pairs with inflammatory bowel disease and 52 healthy controls were investigated for serum antibodies (IgA, IgG, IgM) against ovalbumin, betalactoglobulin, gliadin, whole yeast (Saccharomyces cerevisiae) and yeast cell wall mannan. The twins were made up of five pairs concordant and nine pairs discordant for Crohn's disease, and two pairs concordant and 10 pairs discordant for ulcerative colitis. Two patients with Crohn's disease had a slight increase in disease activity, the others were in clinical remission. Two striking observations were made: first, individuals with ulcerative colitis were indistinguishable from healthy twins, and controls except for the response to gliadin. Both healthy and diseased twins had higher IgA levels to gliadin than controls. Second, twins who had developed Crohn's disease displayed higher antibody titres towards yeast cell wall mannan in particular, but also to whole yeast (Saccharomyces cerevisiae) of all antibody types (IgA, IgG, and IgM). In contrast, the response to gliadin, ovalbumin, and betalactoglobulin did not differ from healthy twins and was even lower than in the controls. The results argue against an increased systemic antigen presentation caused by an impaired mucosal barrier in the inflammatory bowel disease. Rather, they suggest that yeast cell wall material--that is, mannan, or some antigen rich in mannose and cross reacting with mannan, may play an aetiological role in Crohn's disease, but not in ulcerative colitis. The increases in IgA and IgM, as well as IgG suggest that local and systemic immune systems are selectively activated by antigen(s) present in the cell wall of baker's yeast.

Linkowski P, Kerkhofs M, Van Cauter E: Sleep and biological rhythms in man: a twin study. Clin Neuropharmacol 1992;15 Suppl 1 Pt A:42A-43A

Littmann L see **Evans MI**

Lo SS, Tun RY, Hawa M, Leslie RD: Studies of diabetic twins. Diabetes Metab Rev 1991 Dec; 7(4):223-38 (90 ref.)

Lo SS see **Christie MR**

Lockshin MD see **Reichlin M**

Lohr JB, Bracha HS: A monozygotic mirror-image twin pair with discordant psychiatric illnesses: a neuropsychiatric and neurodevelopmental evaluation. Am J Psychiatry 1992 Aug;149(8):1091-5

One piece of genetic evidence for the biological distinctness of schizophrenia and bipolar illness is the rarity of monozygotic twin pairs in which one twin suffers from schizophrenia and the other from bipolar disorder. The authors describe a pair of monozygotic mirror-image twins with discordant diagnoses, schizophrenia in one twin and bipolar or schizoaffective disorder in the other.

Lorber J see **Berker E**

Loverro G, Ranieri DM, Greco P, Selvaggi L: Twin pregnancy complicated by intrauterine demise of one fetus. Acta Genet Med Gemellol (Roma) 1991; 40(3-4):395-9

Two cases of antepartum demise of one fetus in a twin pregnancy are reported. Obstetrical management and fetal outcome are discussed with particular respect to changes in maternal coagulation parameters.

Lucarelli S see **Frediani T**

Ludin HP see **Vieregge P**

Luke B, Keith L, Johnson TR, Keith D: Pregravid weight, gestational weight gain and current weight of women delivered of twins. J Perinat Med 1991; 19(5):333-40

To determine whether large gestational weight gains result in higher maternal body weight within two years post-partum, we administered an anonymous survey to 423 mothers of twins at the Annual Twinsday Festival in Twinsburg, Ohio, in 1989 and 1990. Data collected included pregravid and current weight, age and parity, gestational weight gain and length of gestation. Data were grouped by patient age (18-24 years, 25-34 years and 35-44 years), parity (primipara or multipara) and length of gestation as preterm (less than 37 weeks) and term (greater than or equal to 37 weeks). Statistical analysis included paired t-tests, unpaired t-tests and chi-square as appropriate. Except for multiparas in the oldest age category, the mean current weight was higher than pregravid weight for each age and age/parity category. Comparison across age categories showed in pattern of increasing pregravid weight with increasing age for the total study sample (all women) and for primiparas; among multiparas, this trend was not as evident. Our findings suggest that large weight gains in twin gestations do not result in higher maternal body weight within two years postpartum. Such gains are associated with better intrauterine growth and should be considered when formulating weight gain recommendations for twin gestations.

Lupien P see **Mauriège P**

M

McClearn GE see **Harris JR**

McComb JM see **Doig JC**

McDonald E see **King M**

McGavran L see **Poole SR**

McGillis C see **Hogge WA**

McGue M: When assessing twin concordance, use the probandwise not the pairwise rate. Schizophr Bull 1992;18(2):171-6 (15 ref.)

Geneticists and twin researchers have long debated the relative merits of two alternative measures of twin concordance: the pairwise and probandwise concordance rates. The results of this debate are now quite clear, for almost every application the probandwise rate is preferred over the pairwise rate. In a recent review of schizophrenia twin studies, however, Torrey (1992) chose to analyze pairwise rather than probandwise rates. Torrey's use of pairwise rates led him to conclude that the monozygotic twin concordance for schizophrenia is weaker than what is widely accepted, and that, by implication, the magnitude of the genetic contribution to schizophrenia has been overestimated. In this brief commentary, we review the relative strengths and weaknesses of the pairwise and probandwise rates and show that Torrey's

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conclusion is based upon his incorrect use of pairwise rates. Twin studies of schizophrenia continue to support the existence of a strong genetic influence on the development of schizophrenia.

McGue M see **Hirsch BA**

Mader TJ: Concomitant intrauterine and ectopic pregnancy or false assumption? [letter; comment] Ann Emerg Med 1992 May;21(5):586-7

Magnusson KE see **Lindberg E**

Majeed-Saidan MA see **Joshi RK**

Malhotra U, Spielman R, Concannon P: Variability in T cell receptor V beta gene usage in human peripheral blood lymphocytes. Studies of identical twins, siblings, and insulin-dependent diabetes mellitus patients. J Immunol 1992 Sep 1; 149(5):1802-8

Recent studies focused on the diversity and molecular organization of the human TCR-beta complex have begun to establish the genetic basis for the potential repertoire of V beta specificities in T cells. The scope and variability of the actual repertoire derived from this potential repertoire, however, remains to be clarified. In this study, V beta usage by human peripheral T cells derived from serial samples of the same individual, identical twins, and the members of three nuclear families that include four members with insulin-dependent diabetes mellitus (IDDM) was assessed by both quantitative polymerase chain reaction and Northern blotting with V beta subfamily-specific probes. Samples taken from the same individual over a period of 21 months and analyzed in separate experiments indicated stability in the peripheral repertoire, whereas the similarity in peripheral V beta usage in a pair of identical twins suggested a strong role for genetics in shaping the peripheral T cell repertoire. In contrast, V beta usage in siblings and in unrelated individuals was observed to differ substantially. In particular, peripheral expression of V beta 3 and V beta 20 differed by more than sixfold among members of two different families. Segregation analysis of TCR and HLA haplotypes in these families suggested that variation in V beta 20 expression was TCR haplotype specific. Subsequent nucleotide sequence analysis of the V beta 20 gene segment in multiple members of these families revealed the presence of a null allele for V beta 20 expression. No consistent significant differences in V beta usage were observed in IDDM patients relative to their siblings or between identical twins discordant for IDDM. These results suggest that the repertoire of peripheral T cell specificities present in different individuals in human populations varies dramatically because of the effects of multiple factors, including TCR germ-line polymorphism.

Malinow MR see **Berg K**

Mallozzi A see **Wolf EJ**

Mamer OA see **Chitayat D**

Mandel JL see **Devys D**

Mannaerts GP see **Wanders RJ**

Mantigh A see **Beekhuis JR**

Marcotte M see **Mauriège P**

Mardesič T, Müller P, Zetová L, Miková M, Stroufová A: [Multiple pregnancies in the IVF and ET programs at the Institute for Maternal and Child Care] Cesk Gynekol 1992 May;57(3-4):102-7 (Eng. Abstr.) **(Cze)**

Of the 71 clinical pregnancies achieved in the IVF and ET programme at the Institute for the Care of Mother and Child between January 1989 and June 1991 22 were multiple (30.9%). In seven cases (31.3%) spontaneous reduction occurred. A total of six patients underwent a multifoetal pregnancy reduction.

Mares P see **Boulot P**

Martin N see **Bellamy N**

Martin NG, Shanley S, Butt K, Osborne J, O'Brien G: Excessive follicular recruitment and growth in mothers of spontaneous dizygotic twins. Acta Genet Med Gemellol (Roma) 1991; 40(3-4):291-301

We wished to establish the frequency, regularity and laterality of multiple ovulation in mothers of dizygotic (DZ) twins and controls. Subjects had regular menses and were not using oral contraceptives. Ovarian ultrasound scans were taken over a number of cycles in 21 mothers of DZ twins and 18 controls (including 13 mothers of monozygotic [MZ] twins). Multiple large follicles (greater than or equal to 12 mm diameter) were seen significantly more frequently in mothers of DZ twins (13/21 mothers, 24/77 cycles, average +/- SE follicles/cycle 1.34 +/- 0.11) than controls (2/18 mothers, 3/31 cycles, average 1.10 +/- 0.08). Both ipsilateral and contralateral multiple follicles were observed. In one case a mother of DZ twins showed multiple large follicles in 7 out of 10 cycles in which she was scanned, including both ipsi- and contralateral patterns of occurrence.

Martin NG see **Boomsma DI**

Martin NG see **Emmerson BT**

Martin NG see **Heath AC**

Martin NG see **Townsend GC**

Martin NG see **Truett KR**

Martin NG see **Williams PD**

Mathews J see **Bellamy N**

Matsubayashi S see **Nakaoka Y**

Matsunaga S see **Taketomi E**

Matsushita M see **Jørgensen AL**

Maumenee IH see **Drack AV**

Mauriège P, Després JP, Marcotte M, Tremblay A, Nadeau A, Moorjani S, Lupien P, Dussault J, Fournier G, Thériault G, et al: Adipose tissue lipolysis after long-term overfeeding in identical twins. Int J Obes 1992 Mar;16(3):219-25

Ten pairs of young male sedentary, non-obese, monozygotic (MZ) twins, aged 21 +/- 2 years (mean +/- s.d.), were overfed for a period of 100 days during which they ingested 4.2 MJ (1000 kcal) per day above their individual energy needs, 6 days per week. There was a mean 8.4 kg increase in body weight and the average gain in body fat reaches 5.6 kg (P less than 0.0001). A biopsy of subcutaneous abdominal fat was performed, before and after the treatment, to determine fat cell weight as well as basal and catecholamine stimulated lipolyses from collagenase isolated adipocytes. Although analysis of variance revealed an increase in abdominal fat cell weight, no significant changes were noted in basal and catecholamine-stimulated lipolyses, due to large variation among individuals, results being expressed either per cell number or corrected for cell surface area. However, significant intrapair resemblance was observed in the changes of basal and epinephrine stimulated lipolyses (ri of about 0.60 in both cases), suggesting a concordant within-pair response, despite large between-pair variation. These results support the notion that the genotype may play an important role in regulating the response of abdominal adipose cells lipolytic activity to caloric excess.

Mazzoleni S, Policicchio G, Piovesana P, Pantaleoni A, Bacolla G, Stocchero L, Minervini M, Zuccaro M: [A case of transient hypertrophic cardiomyopathy in a twin infant of a diabetic mother] Pediatr Med Chir 1992 Jan-Feb;14(1):95-8

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(Eng. Abstr.) **(Ita)**
The case is reported of a dizygotic twin infant of a diabetic mother with transient hypertrophic cardiomyopathy. The clinical course and eco-ecg reports are described. The etiopathogenesis is discussed since no evidence of cardiomyopathy was found in the second twin. The importance of a timely diagnosis for a correct therapy is emphasized.

Mead LJ, Chuffo R, Lawlor-Klean P, Meier PP: Breastfeeding success with preterm quadruplets. J Obstet Gynecol Neonatal Nurs 1992 May-Jun; 21(3):221-7
Although the incidence of triplet and quadruplet birth has increased in the United States, few research-based guidelines are available for assisting mothers of these multiple births with breastfeeding. The purpose of this case study is to report a successful breastfeeding experience of a mother with preterm quadruplets. The quadruplets were born by cesarean delivery at 34 weeks' gestation and weighed from 1,820 g to 2,240 g. In-hospital breastfeeding experiences were managed by the authors, according to research-based guidelines for breastfeeding preterm neonates and infants. During the first month after discharge of the four newborns, the mother breastfed 12-34 times daily. Mean daily weight gains for the quadruplets during this time varied from 30 g to 54 g, indicative of adequate maternal milk supply. Nurses in maternity and neonatal specialties can apply the findings from this study to similar cases of mothers who want to breastfeed multiple neonates or infants.

Meagher-Villemure K see **Chitayat D**

Mee JF: Siamese twin calves [letter] Vet Rec 1992 Aug 1;131(5):108

Meier PP see **Mead LJ**

Mellins C see **Baker LA**

Menget A see **Burguet A**

Mercier JC see **Bingen EH**

Mercier M see **Burguet A**

Merikangas KR see **Brass LM**

Messinetti S see **Gedda L**

Meyenburg M see **Bartnicki J**

Meyer JM, Heath AC, Eaves LJ: Using multidimensional scaling on data from pairs of relatives to explore the dimensionality of categorical multifactorial traits. Genet Epidemiol 1992; 9(2):87-107
An accurate specification of the dimensionality and ordering of categorical multifactorial phenotypes (e.g., smoking status, including heavy, moderate, light, and nonsmokers) is an important prerequisite for the genetic analysis of these traits. Typically, phenotypic dimensionality and ordering are determined by comparing the relative fits of alternative parametric threshold models. Here, a method of analysis is described which addresses the same issue of trait dimensionality but does not require parametric assumptions. Specifically, we detail how nonmetric multi-dimensional scaling (MDS), applied to contingency tables which cross-classify the phenotypes or responses of one relative with another, may be used to explore trait dimensionality. Scaling results from deterministic simulation studies indicate that the latent structure of categorical phenotypes can be recovered with nonmetric MDS. Results from stochastic simulations, however, indicate that the accuracy of recovery, as well as the rejection of models of incorrect dimensionality, are strongly dependent upon sample size and the latent liability correlation between relatives. As an application of the method, the dimensionality of a measure of smoking status in 1,656 pairs of monozygotic twins ascertained through the American Association of Retired Persons is considered. The MDS results indicate that the onset of the smoking habit and the quantity smoked in this aging population represent a unidimensional process. The implication this finding has for subsequent genetic analysis is discussed.

Meyer JM, Neale MC: The relationship between age at first drug use and teenage drug use liability [comment] Behav Genet 1992 Mar;22(2):197-213
Our analyses of Carey's (1992) simulated data set of substance abuse in a cohort of adolescent twins were aimed at answering the question What is the relationship between age at first drug use and EVER having used drugs (i.e., teenage drug use liability)? Three analytic methods were used to determine whether age at first drug use was (1) a "perfect" index of drug use liability, (2) correlated in relatives but conditionally independent of drug use liability, or (3) causally influenced by drug use liability and by factors independent of liability. The analytic methods included nonmetric multidimensional scaling, multifactorial threshold model-fitting to contingency tables, and pedigree-based likelihood formulations for the raw data. All approaches indicated that age at first drug use was a perfect index of drug use liability. Further, model-fitting results indicated that only shared environmental factors accounted for twin similarity in the onset and timing of drug use. We discuss the limitations of each of the analytic methods and integrate our findings with the true model used in Carey's simulation.

Meyer JM see **Truett KR**

Miková M see **Mardesič T**

Minervini M see ***Mazzoleni S***

Mogilner G see **Zalel Y**

Mohan R see **Rebarber A**

Moker JS see **Plante Y**

Molenaar PC see **Dolan CV**

Monfregola MR see **Penza B**

Monni G, Useli C, Ibba RM, Lai R, Olla G, Cao A: Early antenatal sonographic diagnosis of conjoined syncephalus-craniothoraco-omphalopagus twins. Case report. J Perinat Med 1991;19(6):489-92
The paper describes the prenatal ultrasonographic diagnosis of conjoined syncephalus-craniothoraco-omphalopagus twins at 13 weeks' gestation. The mother, after genetic counseling, decided to interrupt the pregnancy. The fetal karyotype, the maternal serum and amniotic fluid alpha-fetoprotein levels were normal. The diagnosis was confirmed by pathologic examination of the fetus after termination of pregnancy.

Montalto G see **Iacono G**

Montoya F see **Boulot P**

Moodley S see **Shah YG**

Moorjani S see **Mauriège P**

Mor C see **Freud E**

Mor Z see **Ron-El R**

Mor-Josef S see **Navot D**

Mordel N, Ezra Y, Dorembus D, Benshushan A, Schenker JG, Sadovsky E: Triplets are not so rare any more. J Perinat Med 1992;20(2):117-22
Triplet gestations present a considerable management challenge due to a high rate of antenatal, intrapartum and neonatal complications. The introduction of ovulation inducing agents resulted in a marked increase of these pregnancies. Consequently, triplet conceptions are not considered a rare phenomenon and have become almost routine high risk pregnancies. In our department the triplet gestation frequency increased 2-4 times in a 10 year

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period from a rate of 0.07–0.14% during 1978–84 to 0.28% of all deliveries in 1987. This high incidence of triplet deliveries results in a threefold increase in the frequency of triplet neonates and their associated complications. It is reasonable to assume that the wide application of various assisted reproductive techniques will result in continuous increase in the incidence of triplets which will in turn require coordinated management of a high risk pregnancy unit, delivery room and neonatal intensive care unit.

Moskowitz WB see **Goble MM**
Mosteller M see **Goble MM**
Motulsky AG see **Jørgensen AL**
Mouelhi C see **Rachdi R**
Mowat AP see **Silveira TR**
Muasher SJ see **Seoud MA**
Muhlbauer B see **Nagar H**
Mühlhaus K see ***Wedeking-Schöhl H***
Müller B see **Vieregge P**
Müller P see **Mardesič T**
Mulvihill JJ see **Steele MW**

Munro JM, Ironside W, Smith GC: Successful parents of in vitro fertilization (IVF): the social repercussions. J Assist Reprod Genet 1992 Apr; 9(2):170–6
A matched comparison was made of 157 parents of preschool twins conceived by one of the following: in vitro fertilization (IVF), infertility workup combined with infertility drug treatment, or spontaneously. The Interview Schedule for Social Interaction was used to examine systematically a comprehensive range of social relationships and the asymmetries therein. Overall, IVF parents reported having deficient social relationships compared with non-IVF parents, and this deficiency was both in size and in affective quality of their available relationships. As anticipated, mothers reported less adequate and available social relationships when compared with their spouses. In the event of a significant finding, mothers from the three groups always had lower mean scores than the fathers. The finding of the extent to which IVF parents were not as socially integrated, compared with the other families of preschool twins, highlights the need to strengthen through mutual aid IVF parents' social networks. The data also suggest the need for ongoing patient care by IVF teams and for support groups to be established exclusively for IVF parents of twins.

Murakami R see **Wakita Y**
Murotsuki J see **Okamura K**

Murphy EA, Breitner JC: Threshold model in the genetics of age-dependent disease in twins: I. General principles as applied to Alzheimer disease. Am J Med Genet 1992 Apr 1;42(6):842–50
In the context of the etiology and pathogenesis of Alzheimer disease (AD), we discuss assumptions under which categorical data on the phenotypes of twin pairs may be used to estimate standardized characteristics (correlation and the critical threshold) for an age-dependent multinomial process. Important topics include Erlangian, gamma, and Poisson processes, tetrachoric and trichoric functions, and degrees of freedom and how they relate to estimation from both an abstract and a practical standpoint. Under plausible assumptions about the age-dependence of a heritable trait, it is possible to generate sufficient degrees of freedom to test the genetic model and to explore age-dependence and the impact of environmental factors that may influence it systematically. Though general in scope, the model is focused on data from twin pairs. The statistical strategy is briefly outlined, but its properties are not examined in detail.

Muthén BO see **Waller NG**

N

Nadal F, Blanc B, Boubli L, Bautrant E, D'Ercole C, Azoulay P: [Triplet pregnancies in France. Results of a retrospective, multicenter study of two years (1987–1988). Proposals for optimal management] Rev Fr Gynecol Obstet 1992 May;87(5):267–76 (Eng. Abstr.) **(Fre)**
The explosion of procedures for medically assisted parenthood (MAP) has resulted in a previously little known type of pregnancy: triple pregnancies. In order to assess the current obstetrical and pediatric situation, the authors have carried out a major retrospective, multicenter survey in France concerning the triple pregnancies from 1987 to 1988: 156 case histories have been collected. The finds are compared with those reported in the French and international literature, showing that in France, three-quarters of such pregnancies result from MAP, mainly due to ovulation-inducing agents. Hospitalization is prolonged (averaging 27 days), early (24 WA) and imposed by complications (in 8 out of 10 cases), prophylactic hospitalization being rarely prescribed. The main complications encountered are late miscarriages (1.9%), in-utero death (6.41%), dysgravidia (16.6%), hydramnios (5.12%) and serious cardio-pulmonary complications related to the use of beta-mimetics. A Cesarian is performed in only 87 percent of cases. The mean birth weight was 1,776 g. Neonatal mortality is on the decline, but still equivalent to 80.3 per thousand. Hypotrophy is common (27%). Birth is nearly always premature (99.3%), but very early prematurity (28–32 WA) was reduced. The approach suggested for optimum management is based on the personal experience of the authors, the findings of their survey and of the international literature. It is based on the prevention of prematurity and a fundamentally multidisciplinary approach.

Nadeau A see **Maurièg P**

Nagar H, Hammar B, Muhlbauer B, Grossman Z: [Congenital inguinal hernia in female triplets] Harefuah 1992 May 1;122(9):573–4, 615 (Eng. Abstr.) **(Heb)**
Each of tri-zygotic female triplets was found to have a right-sided sliding inguinal hernia. Although inguinal hernia has been previously diagnosed in twins, as well as in relatives of patients with hernias, a genetic basis for the condition has not been established.

Nagel SL see **Emmerson BT**
Naides SJ see **Weiner CP**
Nakamura K see **Fukushima Y**

Nakaoka Y, Matsubayashi S, Kodama T: [A case of an acardius in a triplets pregnancy] Nippon Sanka Fujinka Gakkai Zasshi 1992 Jun; 44(6):739–41 **(Jpn)**

Narahara K see **Wakita Y**

Navot D, Goldstein N, Mor-Josef S, Simon A, Relou A, Birkenfeld A: Multiple pregnancies: risk factors and prognostic variables during induction of ovulation with human menopausal gonadotrophins. Hum Reprod 1991 Sep;6(8):1152–5
Multiple pregnancies still constitute a major and relatively frequent complication of induction of ovulation by human menopausal gonadotrophins (HMG) despite the increasing sophistication of

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monitoring techniques. In order to define specific variables which may be associated with multiple pregnancies, we have compared 51 multiple pregnancy cycles to 51 consecutive control singleton pregnancy cycles, following HMG induction of ovulation. The aetiology and classification of anovulation, duration of infertility, total amount of HMG utilized per cycle and the duration of stimulation were not associated with an increase in the rate of multiple pregnancy. Basal serum oestradiol levels and its periovulatory pattern were remarkably similar in the singleton and multiple pregnancy groups. The mean age of the multiple pregnancy group (29.4 +/- 4.4 years) was significantly lower than the mean age of the singleton pregnancy group (31.6 +/- 5.3 years) (P less than 0.05). In the multiple pregnancy group, there were significantly more cycles with intermediate sized (15–17 mm). (P less than 0.002), small sized (12–14 mm). (P less than 0.02) and immature follicles (less than 12 mm) (P less than 0.03), at the time of human chorionic gonadotrophin (HCG) administration, as compared with the singleton pregnancy group. Furthermore, a direct linear correlation was observed between the number of intermediate sized follicles and number of implanted embryos. The presence of intermediate sized follicles at the time of HCG administration after HMG induction of follicular maturation is predictive of, and independently associated with, a higher incidence of multiple pregnancy.

Neal GS, Hankins GD: Left microtia in one monozygotic twin. A case report. J Reprod Med 1992 Apr;37(4):375–7 (10 ref.)
Monoamniotic twins are rare, with a double survival rate of only 40%. Congenital anomalies, while more common among twins in general, are particularly common in monoamniotic twins, with the increase principally the result of structural defects. Discordant phenotypes have been reported, but a malformation of the external ear in one twin has not. In a case of double survival of monoamniotic twins, one had left microtia and a single umbilical artery.

Neale MC see **Heath AC**
Neale MC see **Hewitt JK**
Neale MC see **Kendler KS**
Neale MC see **Kessler RC**
Neale MC see **Meyer JM**

Neilson JP: Prenatal diagnosis in multiple pregnancies. Curr Opin Obstet Gynecol 1992 Apr;4(2):280–5 (43 ref.)
Multiple pregnancy, with its high rate of fetal loss and increasing incidence, merits greater clinical attention and research. Prenatal diagnosis in multiple pregnancy poses particular difficulties in terms of safety and technique of invasive procedures, interpretation of laboratory results, and the human dilemmas produced by the demonstration of discordant abnormality. Recent applications of ultrasound, including Doppler ultrasound, are also discussed in the context of the monochorionic placenta, prediction of preterm labor, and detection of intrauterine growth retardation.

Nelson KB see **Scheller JM**
Němeček S see **Pařízek J**
Němečková J see **Pařízek J**

Nerlich A, Wisser J, Krone S: [Placental findings in "vanishing twins"] Geburtshilfe Frauenheilkd 1992 Apr;52(4):230–4 (Eng. Abstr.) **(Ger)**
We examined morphologically the placenta in 15 cases of a "vanishing-twin" phenomenon of early pregnancy sonographically confirmed. In 10 of these cases remnants of an additional gestation product could be identified with ample variation in their conservation. These ranged between macerated, but clearly identifiable foetal residues and morphologically regular, empty gestational sacs, all being localised at the placental margin or within the amniotic tissue sheets. The chorionic villi of the surviving twins were normally developed. There was no evidence of any correlation between the developmental status of the vanished twin and any therapeutical intervention, age of the mother or number of initial gestational products. In 3 cases, an intrauterine foetal reduction by foetocide had been performed. In these instances, rather well-developed remnants of the additional fetuses could be found. Since in all cases a pluri-chorionic placenta was present, it is possible, that the vanishing twin phenomenon may be held responsible for an eventual blood group incompatibility during subsequent pregnancies.

Nesselroade JR see **Harris JR**

Nesvizhskiĭ IuV: [Determination of the phenotypic variability of the autoantibody level in man] Genetika 1991 Dec;27(12):2177–81 (Eng. Abstr.) **(Rus)**
The principles of determination of phenotypic variability of the autoantibodies levels in man were investigated using twin and cluster analyses. The component difference of common phenotypic variance of immunological traits considered has been shown. The component mentioned depended on the molecular origin of the autoantigen.

Newman B see **Selby JV**

Newnham JP, Kelly RW, Patterson L, James I: The influence of maternal undernutrition in ovine twin pregnancy on fetal growth and Doppler flow-velocity waveforms. J Dev Physiol 1991 Nov; 16(5):277–82
The effects on placental blood flow velocity of maternal undernutrition during mid pregnancy were investigated in 38 twin bearing pregnant sheep by Doppler analysis of umbilical and uteroplacental arterial waveforms. Mid pregnancy undernutrition resulted in fetal growth restriction manifest at term gestation by reduced mean birth weight. Arterial waveform systolic/diastolic ratios from the umbilical and uteroplacental arterial circulations were not influenced by maternal nutrition either during the dietary deprivation or during a subsequent period of dietary supplementation. An effect of heart rate on systolic/diastolic ratios could not be demonstrated. The results indicate that the fetus responds to mid pregnancy maternal undernutrition with restricted growth but without alterations in systolic/diastolic ratios in umbilical or uteroplacental arterial waveforms.

Ney JA see **Leach RE**
Nilsen G see **Stovner LJ**
Ninomiya S see **Wakita Y**

O

Oberlé I see **Devys D**
O'Brien G see **Martin NG**
Oda N see **Abe K**
O'Donnell J see **Teikari JM**
O'Gorman A see **Chitayat D**
Ohashi K see **Okamura K**

Okamura K, Murotsuki J, Iwamoto M, Endo H, Watanabe T, Ohashi K, Yajima A: A probable case of superfecundation. Fetal Diagn Ther 1992; 7(1):17–20

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Discordant twins are of obstetrical concern because of high morbidity and mortality of either the smaller or the larger twin, or both. The discordance becomes apparent usually in the second trimester. We report a case of discordant twins diagnosed in the 10th week of gestation, which was concluded to be a case of superfecundation. The discordancy was persistent up to the 35th week of gestation, when 2 baby boys were born by cesarean section because of preeclampsia. The postnatal courses of the babies were uneventful.

Oki A see **Hamada H**

Olar TT see **Dickey RP**

Olla G see **Monni G**

O'Neill J see **Albert MC**

Onitsuka T see **Fukushima Y**

Ophir D see **Gross-Isseroff R**

Ordorica SA, Frieden FJ, Hoskins IA, Young BK: Discordant twins: acid-base status.
Acta Genet Med Gemellol (Roma) 1991; 40(3-4):373-81
A prospective study was undertaken to determine the effect of twin birthweight discordancy on Apgar scores and umbilical blood acid-base parameters. Using the paired t-test, small but statistically significant differences were seen in these parameters favoring the heavier twin over its lighter sibling. These differences were also affected by birth order, with the first-born being favored.

Ordorica SA, Hoskins IA, Young BK: Acid-base differences in preterm and term twin pregnancy.
Acta Genet Med Gemellol (Roma) 1991; 40(3-4):361-72
A prospective study was undertaken which examined 179 sets of twins, 68 premature (less than 36 weeks of gestation) and 111 term. The purpose of this study was to assess differences in the acid-base status between twins related to gestational age, birth order and the time interval between twin births. Although the twin blood-gas data is within the range considered normal, statistically significant differences favoring the first-born were noted for both preterm and term twins. These differences do not depend on gestational age, route of delivery or presentation, and become evident when the interval between twin births exceeds one minute. We postulate that after delivery of the first twin, the reduced uterine size causes a decrease in the intervillous blood flow and consequently a reduction in the respiratory exchange between the second fetus, still in utero, and its placenta.

Ordovas JM see **Lamon-Fava S**

Orlebeke JF, Eriksson AW, Boomsma DI, Vlietinck R, Tas FJ, de Geus EC: Changes in the DZ unlike/like sex ratio in The Netherlands.
Acta Genet Med Gemellol (Roma) 1991; 40(3-4):319-23
Based on Dutch twin incidence figures since the beginning of the current century, evidence is provided in support of the idea that the DZ unlike/like sexed ratio has gradually shifted (since 1900) from unity to less than unity. Opposing conclusions with regard to the justification of the use of Weingberg's differential rule are very probably correct in themselves but could depend on country and period of birth of the twin sample used. Furthermore, the fast drop and subsequent rise in DZ twinning rate between about 1963 and 1990 can very likely for the greater part be ascribed to a parallel shift in maternal age.

Orlebeke JF see **Boomsma DI**

Ory SJ see **Leach RE**

Osborne J see **Martin NG**

Ott H Jr see **Kurzel RB**

Ottman R: Genetic and developmental influences on susceptibility to epilepsy: evidence from twins.
Paediatr Perinat Epidemiol 1992 Apr;6(2):265-72
This study evaluated genetic and developmental contributions to epilepsy, using data on epilepsy and multiple births in the sibships of 1981 probands with epilepsy. Prevalence of a history of epilepsy was much higher in monozygotic (MZ) than in dizygotic (DZ) co-twins of probands (35.0% vs. 3.7%), but prevalence was not significantly higher in DZ co-twins than in singleton siblings. The proportion of individuals who were MZ twins was higher among probands with epilepsy than among their non-co-twin siblings without epilepsy (odds ratio 2.5, 95% CI 1.31-4.85). However, the proportion who were DZ twins was similar among probands and unaffected siblings (odds ratio 1.0, 95% CI 0.67-1.60). These findings suggest that the increased prevalence of epilepsy in MZ co-twins of probands may be partly explained by developmental factors related to MZ twinning, rather than by their genetic identity with the probands.

Ozerova NI, Alfimova MV, Iznak AF, Chaianov IV, Iurov IuB, Sinev EM: [Multidisciplinary approach to the study of a family with many children including several schizophrenics] Zh Nevropatol Psikhiatr 1992;92(1):121-7 **(Rus)**

P

Pantaleoni A see **Mazzoleni S**

Pařízek J, Němeček S, Pospísilová B, Procházková O, Němečková J, Cernoch Z, Zižka J: Mature sacrococcygeal teratoma containing the lower half of a human body. Childs Nerv Syst 1992 Mar; 8(2):108-10
Twins were diagnosed by ultrasound in a 29-year-old woman. The cesarean delivery revealed at first a mature girl with a large benign sacrococcygeal teratoma and then a healthy boy. X-ray and CT examinations of the teratoma showed pelvic and lower limb bones. A mature teratoma-tridermoma (weight 475 g) containing the underdeveloped lower half of a human body was confirmed during surgery and verified morphologically. The fraternal twins, i.e., the girl operated upon and her brother, have been followed for 5 years and are without any complaints. They have normal neurological function.

Parnaby RM see **Curtis P**

Patterson L see **Newnham JP**

Pedersen CB see **Jørgensen PH**

Pedersen NL see **Harris JR**

Pelliccia G see **Boulot P**

Penisson-Besnier I, Degoul F, Desnuelle C, Dubas F, Josi K, Emile J, Lestienne P: Uneven distribution of mitochondrial DNA mutation in MERRF dizygotic twins. J Neurol Sci 1992 Jul; 110(1-2):144-8
A new family of myoclonic epilepsy with ragged-red fibers (MERRF) was studied at clinical, histological, biochemical and molecular genetic levels. There was a remarkable variation in the age of onset, the clinical presentation and the severity of symptoms. Multiple defects affecting respiratory chain complexes I, III and IV were detected in 2 patients. The point mutation at 8344 of the mitochondrial genome was found in all the maternal lineage with a relatively narrow range of variation in the percentage of mutant mitochondrial genomes. The one exception was represented by a set of

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dizygotic twins, one clinically affected and showing high proportions of mutant mitochondrial DNAs (mtDNAs) in blood cells, while the other was asymptomatic and showed very small amounts of mutant mt-DNAs in blood and skin. This could suggest an early segregation of the mitochondrial genome during ovogenesis.

Pennington BF see **Gilger JW**

Pennington BF see **Gillis JJ**

Penza B, Carnevale I, Laurini GP, Monfregola MR, Doretti V: [Multiorgan failure syndrome in multiple pregnancy gestosis] Minerva Anestesiol 1992 Jul-Aug;58(7-8):473-6 (Eng. Abstr.) **(Ita)**

The Authors report a clinical case of Multi Organ Failure in a young woman who had given birth to triplets. After a short recall of Multi Organ Failure Syndrome, the Authors describe the clinical course and the therapy used in this case.

Pergament E, Schulman JD, Copeland K, Fine B, Black SH, Ginsberg NA, Frederiksen MC, Carpenter RJ: The risk and efficacy of chorionic villus sampling in multiple gestations. Prenat Diagn 1992 May; 12(5):377-84

Chorionic villus sampling (CVS) in the first trimester of pregnancy provides a safe and effective method for the early prenatal diagnosis of cytogenetic abnormalities in multiple gestations. In this multicentre study involving 126 twin and 2 triplet gestations primarily at risk because of advanced maternal age, the overall success rate of obtaining an adequate villus sample from each fetus was 99.2 per cent. For women of advanced maternal age, the rate of combined losses of chromosomally normal fetuses due to spontaneous abortion, stillbirths, and neonatal deaths was 5.0 per cent, compared with a 4.0 per cent total loss rate following CVS in singleton pregnancies derived from the same population (Rhoads et al., 1989). There was a 100 per cent success rate in obtaining a cytogenetic analysis; a cytogenetic abnormality was present in five of the multiple gestations (3.9 per cent) and involved seven fetuses (2.7 per cent). There were no diagnostic errors and no cases of normal cytogenetic diagnosis followed by the birth of a cytogenetically abnormal newborn. Based on cases of XX/XY admixture, cell contamination derived either from maternal decidua or the other twin occurred in 6 of 256 samples (2.3 per cent), giving an overall estimate of the frequency of cell contamination of 4.6 per cent; these cases did not present a diagnostic problem. However, there were two cases (0.8 per cent) in which the fetal sex was incorrect, due either to complete maternal cell contamination or to the possibility that in error one twin was sampled twice.

Perkins RP, Terry JD: Exclusion of monoamniotic twinning by contrast-enhanced computed tomography. Obstet Gynecol 1992 May;79(5 (Pt 2)):876-8

Monoamniotic twinning, through relatively rare, imposes a constant threat of adverse outcome upon twin pregnancy, at least until the third trimester. This report describes the use of contrast-enhanced computed tomography as one way to define or rule out the condition and proposes an optimal technique and timing for its utilization.

Perryman MB see **Dubel JR**

Persad P see **Charran D**

Phansopkar M see **Gosavi A**

Phelps E see **Baker LA**

Philip J see **Jørgensen AL**

Philippe P: Twinning in susceptible mothers. An exploratory study of international data by Payami's models suggests "reproductive maturity" as a risk factor. Acta Genet Med Gemellol (Roma) 1991; 40(3-4):269-89

An attempt has been made to apply Payami's models to maternal age-specific twin birth prevalences in several countries. The models disclose the heterogeneity of a cohort and spell out the risks to susceptible members (who will actually get the disease) according to age (or time). Payami's method specifies that the typical cohort of susceptibles is ascribed to two exposures: a potent and generalised exposure and a very low or no risk secondary exposure. The models have been adjusted to international data from current as well as old populations, of Occidental and Japanese origin. Results show that cohorts of twin-prone mothers aged 25 to 45 are homogeneous. A single dominant etiology is suggested which applies to both MZ and DZ twins. Heterogeneity, from 10% to 25%, is present in all countries whenever the 20-24 age group is involved. A separate study of illegitimate twin births from Denmark reduces the heterogeneity and shows that MZ illegitimate twin births are due to a secondary exposure responsible for a distinct twinning etiology. The age-specific risks of a MZ illegitimate twin birth are much higher than those of any comparison group, and are constant until age 35 years. This suggests a single-hit exposure akin to a neuroendocrine stimulus which short-cuts the usual age-dependent etiologic pathway. MZ and DZ twins both experience the same maternal age specific risks, an observation which underscores the common etiology of both types of twins. Risks increase with age from 20 to 45 years. The pattern according to age varies among countries and time periods. Occidental populations have a pattern varying from an exponential to a more linear increase in old and recent populations, respectively. Only present-day Japan displays a logarithmic-like growth curve. The concept of "reproductive maturity" is introduced, and related to the secular trend of the DZ twin birth risk and to its variation across countries. Two new conclusions are drawn: a) The higher the rate of reproductive maturity, the less the DZ twin birth risk and, b) Reproductive maturity determines the maternal age-specific gonadotropin levels.

Phillips OP see **Shulman LP**

Picard B see **Bingen EH**

Picard E see **Picard R**

Picard R, Fraser D, Picard E: Ethnicity and sex ratio in twin births. Acta Genet Med Gemellol (Roma) 1991;40(3-4):311-7

The patterns of sex ratio in Israeli twins by maternal age and parity are described in two ethnic subpopulation. Jews and Bedouins differ one from the other in genetic, environmental, lifestyle, and reproductive factors. In the Jewish subpopulation, the proportion of males was significantly lower in twin than in singleton births; parity increased the odds of male twin births while maternal age had the inverse effect. In the Bedouin subpopulation, the sex ratio did not differ significantly from that of singletons, and no consistent patterns were found by maternal age and parity. The data suggest that several factors may influence the sex ratio in twin births. In Jewish twin births, the findings are consistent with the literature and can be largely explained in terms of high level of maternal gonadotropins. In the Bedouin subpopulation, paternal influence which could be related to lifestyle may be present, and as yet undefined genetic factors may also be involved. It would be of great interest, therefore, to continue monitoring of the effects of

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changes in lifestyle on the Bedouin population in order to tease out the relative importance of the varying factors on the sex ratio of twin births.

Piovesana P see **Mazzoleni S**

Plante Y, Schmutz SM, Lang KD, Moker JS: Detection of leucochimaerism in bovine twins by DNA fingerprinting. Anim Genet 1992;23(4):295–302
Karyotyping and hypervariable genetic markers indicate extensive leucochimaerism between pairs of dizygotic twins in cattle, a result of placental vascular anastomosis. The extent of this chimaerism includes both kind and number of cells exchanged. All heterosexual twin pairs harboured two types of leucocytes, having either XX or XY chromosome pairs, and 30 of 31 pairs of twins shared identical DNA fingerprints. Although chromosome results from skin fibroblasts indicate that some chimaerism occurs in the skin, the low level allows for differentiation of genotypes between twins. The results warrant against the common practice of using blood samples for DNA typing if twinning is not properly documented.

Plomin R see **Harris JR**

Podoll K see **von der Stein B**

Poellath MG: Heterotopic triplets [letter]
Trop Doct 1992 Apr;22(2):86–7

Policicchio G see **Mazzoleni S**

Poole SR, Smith AC, Hays T, McGavran L, Auerbach AD: Monozygotic twin girls with congenital malformations resembling fanconi anemia.
Am J Med Genet 1992 Apr 1;42(6):780–4
Monozygotic (MZ) twin girls, diagnosed at birth to have Fanconi anemia (FA) on the basis of multiple anomalies and an apparently increased baseline chromosomal breakage frequency in one twin, have been followed prospectively for 13 years. They have not developed aplastic anemia or other hematologic manifestations of FA. There was no evidence for increased baseline or diepoxybutane (DEB)–induced chromosomal breakage in either twin when the studies were repeated in Denver as well as in New York. Since the cellular phenotype must be considered in establishing the diagnosis of FA, these MZ twins should not be classified as affected with FA. Using the scoring system for FA diagnosis developed by Auerbach et al. [1989], the probability coefficients of their having FA based solely on clinical findings, prior to DEB testing, were .75 and .92, respectively. When the combination of their anomalies are taken together, their FA probability coefficient is .98. Through the International FA Registry, 15 additional patients have been identified with an FA probability score of .75 or greater, but who have not developed aplastic anemia and who are DEB negative. These patients, as well as the twins described in this report, are most likely a heterogeneous group and may represent other syndromes like Holt–Oram, VATER, VACTERL and IVIC, with genetic as well as nongenetic etiologies. These cases demonstrate the importance of testing with DEB or other DNA crosslinking agent in order to discriminate between FA and other syndromes with a similar phenotype.

Pospísilová B see **Pařízek J**

Priestley B see **Berker E**

Procházková O see **Pařízek J**

Puddey IB see **Williams PD**

Pueschel SM, Friedman JH, Shetty T: Myoclonic dystonia. Childs Nerv Syst 1992 Mar;8(2):61–6
Myoclonic dystonia is a rare disorder that occurs in an hereditary and a sporadic form. The autosomal-dominantly inherited form is responsive to alcohol but not to other drugs. The sporadic form has been relatively resistant to drug treatment. We report a young man with myoclonic dystonia who displayed only little response to alcohol but improved significantly with a combination of sodium valproate for myoclonus and trihexiphenidyl hydrochloride for dystonia. His rehabilitation, however, was confounded by public authorities who thought the patient's appearance was indicative of drug use.

Pugh DH see **Sarhanis P**

Pulido JS see **Drack AV**

Pupkin M see **Hogge WA**

R

Rachdi R, Fekih MA, Mouelhi C, Brahim H: [Problems posed by the delivery of twin pregnancies]
Rev Fr Gynecol Obstet 1992 May;87(5):295–8 (Eng. Abstr.) **(Fre)**
The authors present a retrospective study of 249 deliveries of twin pregnancies collected between 1987 and 1990. The incidence of twin pregnancies is 1.6%. Delivery is premature in 28.1% of cases and that of low birth weight is 51.7%. In 13.2% of cases, delivery was Cesarean and the Apgar score was significantly higher for the first twin than for second. Perinatal mortality was 7.2 percent. The authors compare these findings with those reported elsewhere in the literature.

Radin TG see **Elliott JP**

Ragland JD, Goldberg TE, Wexler BE, Gold JM, Torrey EF, Weinberger DR: Dichotic listening in monozygotic twins discordant and concordant for schizophrenia. Schizophr Res 1992 Jul;7(2):177–83
Emotional and neutral word versions of the fused rhymed words dichotic listening test were administered to members of 18 pairs of monozygotic twins discordant for schizophrenia, 7 pairs concordant for schizophrenia, and 7 pairs of normal twins. In the discordant group, affected twins had smaller right ear advantages than did their unaffected cotwins for neutral words. The difference was completely attenuated with the presentation of emotional words or in less powerful between-group comparisons that included twins concordant for schizophrenia and normal twins. It is unlikely that this finding reflects an abnormality in the lateralized representation of language, both because we did not find a correlation between handedness scores and dichotic listening scores and because emotional stimuli normalized results. The finding may reflect abnormalities in the allocation of attention for priming language centers in the left hemisphere. 'At risk' subjects, i.e., the unaffected members of the discordant pairs, did not differ significantly from normal monozygotic twins on measures of dichotic listening.

Ramos-Arroyo MA: Birth defects in twins: study in a Spanish population.
Acta Genet Med Gemellol (Roma) 1991; 40(3–4):337–44
The risk for specific defects among twins compared to singletons was studied using data collected by the Spanish Collaborative Study of Congenital Malformations (ECEMC). A total of 136 twins had a major and/or minor congenital defect. The overall rate of congenital defects in twins (2.37%) did not deviate significantly from the rate in singletons (2.21%). Like-sex (LS) and male–male (MM) twin pairs had a slightly higher rate of birth defects than unlike-sex (US) and female–female (FF) pairs, respectively. Defects of the central nervous system,

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cardiovascular system and genitourinary system were significantly more frequent in LS twins than in singletons, with relative risks of 2.8, 2.5 and 1.6, respectively. No significantly increased risk was found among US twins. Among defects of the central nervous system, the rates of anencephaly, encephalocele and hydrocephaly were significantly higher in total and LS twins; however, no significantly increased risk for spina bifida was observed when compared to singletons. MM twins were also 1.9 times more likely to have hypospadias, but the risk among males of male-female (FM) pairs was decreased.

Ranieri DM see **Loverro G**

Raskind WH see **Jørgensen AL**

Read AP see **Clayton-Smith J**

Rebarber A, Mohan R: Prenatal diagnosis of cystic adenomatoid malformation of one fetus in a twin pregnancy: an unusual presentation. J Ultrasound Med 1992 Jun;11(6):305-8

Reed T, Christian JC, Wood PD, Schaefer EJ: Influence of placentation on high density lipoproteins in adult males: the NHLBI twin study. Acta Genet Med Gemellol (Roma) 1991; 40(3-4):353-9

Dizygotic (DZ) World War II veteran twins who participated in the National Heart Lung and Blood Institute (NHLBI) Twin Study have been reported to have greater variance than monozygotic (MZ) twins for plasma high-density lipoprotein cholesterol (HDL-C), cholesterol in the low-density fraction of HDL (HDL2-C) and apolipoprotein A-I, a major protein component of HDL. It was hypothesized that a possible source of this difference in zygosity variance could be prenatal environmental influences related to placental type. Dermatoglyphics were used to provide a retrospective index of placental type in a subset of the NHLBI MZ twins aged 59-70. The MZ twins classified as dichorionic were found to have significantly greater within-pair variability than the monochorionic MZ twins for HDL-C, HDL2-C and Apo A-I. These findings indicate that intrauterine environmental influences on HDL are manifest later in life.

Reed T see **Lamon-Fava S**

Reed T see **Selby JV**

Reed T see **Slemenda CW**

Reed TE see **Swan GE**

Reichlin M, Harley JB, Lockshin MD: Serologic studies of monozygotic twins with systemic lupus erythematosus. Arthritis Rheum 1992 Apr; 35(4):457-64

OBJECTIVE. The goal of these studies was to assess the role of genetic factors and disease expression in the pattern and titer of autoantibodies to several RNA protein antigens in patients with systemic lupus erythematosus (SLE) by studying identical twins concordant and discordant for disease expression. METHODS. Autoantibodies to Ro/SS-A, La/SS-B, U1 RNP, and Sm were measured by quantitative enzyme-linked immunosorbent assay using affinity-purified antigens. RESULTS. Detailed serologic studies were performed in 7 pairs of identical twins, 3 of whom were concordant and 4 of whom were discordant for disease expression. Autoantibody titers were higher in affected than in unaffected twins from discordant pairs, but in 3 of 4 pairs, the profile of anti-RNA proteins (e.g., Ro/SS-A, La/SS-B, U1 RNP, and Sm) was virtually identical. In the SLE pairs concordant for disease expression, the autoantibody titers were very similar, as were the anti-RNA protein profiles. When the identical twins were matched by sex, race, and age to pairs of nontwin SLE patients, the 6 white twins shared an average of 2.5 (+/- 1.05 SD) anti-RNA proteins, while the control SLE pairs shared only 0.33 (+/- 0.82), P less than 0.01 (t = 4.0, P less than 0.01). In addition, in the white SLE twins, all had elevated levels of anti-U1 RNP while in white nontwin SLE patients, the frequency of anti-U1 RNP was 30%. CONCLUSION. These data point to a dominant role for genetic factors in the determination of specific autoantibody profiles.

Reid DS see **Doig JC**

Reise SP see **Waller NG**

Reister TK see **Slemenda CW**

Reite M, Scheuneman D, Gilger JW, Teale P, Goldstein L, Boccia M: Auditory magnetic source localization in twins. Brain Res Bull 1992 Apr;28(4):641-4

We recorded magnetoencephalographic (MEG) auditory evoked fields (EF) from the L and R hemispheres of 12 paris of twins, 6 monozygotic (MZ), and 6 dizygotic (DZ) and localized the source of the 100 msec latency EF component termed the M100. M100 sources exhibited greater similarity in location in MZ twin pairs, especially in the L hemisphere. These findings support the hypothesis that the functional location of processing of nonmeaningful unattended auditory stimuli may depend more heavily on left hemisphere structures. Furthermore, genetic effects are evident in these left hemisphere structures and their activity, as is a substantial amount of environmental variance.

Relou A see **Navot D**

Reynolds C see **Baker LA**

Reynolds OE see **Silvetti AN**

Risse M, Weiler G: [Epidemiology and morphology of sudden death in infancy in twins and siblings] Beitr Gerichtl Med 1991;49:29-32 (Eng. Abstr.) **(Ger)**

429 SIDS cases were investigated in a retrospective study. For this study, the deaths in which at least one brother or sister had died under comparable circumstances were evaluated. The 429 babies who had died comprised 17 multiple birth babies (3.7%) including 15 twin and two triplet babies. Eleven cases (2.6%) were brothers or sisters of SIDS victims. In three cases, relatives of the baby's mother had died of sudden infant death. A comparison of the various case groups did not reveal any patho-morphologically significant differences between the groups or differences from other SIDS cases. All the multiple birth babies were immature and premature babies. There was a raised incidence of poor socio-economic conditions in the sibling group. The results are significant for parent counselling, any preventive measures and the detection of concurrent (in particular, unnatural) causes of death.

Robain O see **Bordarier C**

Roberge C, Bouchard JP, Simard D, Gagné R: Cluster headache in twins [letter; comment] Neurology 1992 Jun;42(6):1255-6

Robinette CD see **Brass LM**

Rodesch F see **Donner C**

Rodis JF see **Wolf EJ**

Romanov K see **Kaprio J**

Ron-El R, Mor Z, Weinraub Z, Schreyer P, Bukovsky I, Dolphin Z, Goldberg M, Caspi E: Triplet, quadruplet and quintuplet pregnancies. Management and outcome. Acta Obstet Gynecol Scand 1992 Jul; 71(5):347-50

The management and outcome of 46 pregnancies, 37 triplets, 7 quadruplets and 2 quintuplets, were analysed. Management of pregnancies, initiated upon diagnosis of multiple pregnancy, included bed rest,

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beta-mimetic agents, dexamethasone late in the second trimester and selective cerclage. The mean gestational age at labor was 235 days in triplet pregnancies, 241 for quadruplets and 220 days for quintuplets. Fifty-four percent of the deliveries were by cesarean section and the remainder per vaginam. The mean weight of the neonates was 1809 g for the triplets, 1837 g for quadruplets and 1284 g for the quintuplets. The mean overall Apgar score was 8.13, total perinatal mortality 14.8% and 9.4% in cases more than 28 weeks. There was no statistically significant difference in the outcome for triplets born vaginally or by cesarean section. In recent years there has been a pronounced reduction in neonatal mortality, dropping from 17.3% during 1970–78 to 5.9% from 1979 to 1983 (p less than 0.05), probably due to the improved neonatal treatment.

Ronzani G see **Gedda L**

Roopnarinesingh S see **Charran D**

Rose RJ see **Kaprio J**

Rose RJ see **Williams CJ**

Rosen DJ see **Altaras MM**

Rosenkrantz TS see **Wolf EJ**

Rosenman RH see **Swan GE**

Rossavik IK: Growth in twin gestations [letter] J Ultrasound Med 1992 Mar;11(3):74

Rousseau F see **Devys D**

Rúa-Figueroa I, de Vega T, Echevarría S, Crespo J: [Sarcoidosis and hemochromatosis (letter)] Med Clin (Barc) 1992 Feb 29;98(8):315–6 **(Spa)**

Rubin RA, Guay AT: Susceptibility to subacute thyroiditis is genetically influenced: familial occurrence in identical twins. Thyroid 1991; 1(2):157–61

Subacute thyroiditis is thought to be virally induced in genetically predisposed individuals because a strong association has been suggested recently between HLA-B35 and patients in whom subacute thyroiditis has developed. Two identical twin brothers were seen at our clinic with the same symptoms and date of onset of hyperthyroidism and enlargement and tenderness of the thyroid, which gave us a unique opportunity to study the genetic predisposition and treatment of this thyroid disease. Diagnostic criteria for subacute thyroiditis were met in both twins, including hyperthyroxinemia, suppression of thyroidal 123I uptake, increased erythrocyte sedimentation rate, transient painful goiter, and absence of antimicrosomal antibodies. Twin B was treated with corticosteroids, and a nonsteroidal anti-inflammatory agent was prescribed for Twin A. The mode of treatment used did not make a difference in affecting the course of the disease. The erythrocyte sedimentation rate was normal after 2 months from onset of symptoms. Results of viral studies were inconclusive. The same HLA typing was found in each twin: A3, B18, B35, Cw4, DR2, DRw10, DQw1. Thus, each was heterozygous for HLA-B35. We reviewed the literature and found a strong association between HLA-B35 and subacute thyroiditis in various ethnic groups tested. Our experience with these identical twins provides additional evidence to suggest that HLA-35 and perhaps Cw4 confer genetic susceptibility in acquiring subacute painful thyroiditis in a possible dominant mode of inheritance.

Rydhström H: Gestational duration and birth weight for twins related to fetal sex.
Gynecol Obstet Invest 1992;33(2):90–3

It has been postulated that male twin pregnancies, in contrast to male singleton pregnancies, differ in some distinctive biologic sense, leading to a shorter gestational duration and a lower individual birth weight than is the case in female twin pregnancies. To test this hypothesis in a relatively large dataset, information on gestational duration and birth weight for nearly all twins born in Sweden during a 4-year period (n = 3,472 twin pairs) was collected from the Medical Birth Registry, National Board of Health and Welfare. Included in the Medical Birth Registry are all pregnancies with a duration of at least 28 completed gestational weeks, or less if the newborns are alive at birth. Male-male pregnancies had a gestational duration similar to female-female pregnancies (median difference less than 2 days). The proportions of twins with a gestational age less than 36 weeks did not differ between male-male and female-female twin pregnancies (27.3 vs. 25.3%; chi 2 = 2.2, p greater than 0.05). Male-male pairs were heavier than female-female pairs (median difference 0.1 kg), and a significantly higher proportion of female-female twin pairs weighted less than 2,500 g (45.0 vs. 39.2%; chi 2 = 17.7, p less than 0.001). The results of this study in an unselected relatively large twin population seem to indicate that fetal sex does not influence gestational duration to any significant extent. Males are heavier than females indicating that the sex has a similar effect on birth weight in twin and in singleton pregnancy.

Rye PH see **Dickey RP**

S

Sabbagha RE see **Frederiksen MC**

Sadovsky E see **Mordel N**

Sahakian V: Rupture of a rudimentary horn pregnancy with a combined intrauterine pregnancy. A case report. J Reprod Med 1992 Mar;37(3):283–4

In the first reported case of a rudimentary horn pregnancy coexistent with an intrauterine pregnancy, the patient presented at 19 weeks' gestation with acute abdominal distress. A ruptured left rudimentary horn pregnancy was found at laparotomy. The rupture was repaired. Preterm labor ensued 24 hours later, with resultant delivery of the second twin from the right cornu despite aggressive tocolysis.

Sahota A see **Gathof BS**

Sakou T see **Taketomi E**

Saling E see **Bartnicki J**

Salzano FM see **Silveira TR**

Sampson M see **Santolaya J**

Sanchioni L see **Brambati B**

Santolaya J, Sampson M, Abramowicz JS, Warsof SL: Twin pregnancy. Ultrasonographically observed changes in fetal presentation. J Reprod Med 1992 Apr;37(4):328–30

The changes in fetal presentation throughout pregnancy were observed ultrasonographically in 332 sets of twins. Seventy-eight percent of the leading twins were vertex at 26–30 weeks' gestational age, 75% at 31–34 weeks and 81% at 35–38 weeks. The incidence of nonvertex presentation for either twin was 73.0%, 64.5% and 59.5% at the same gestational ages. The results are not significantly different from those on concordant twins delivered at the same gestations. Thus, one can counsel parents of twins at all gestational ages in regard to the potential for malpresentation.

Sarda P see **Boulot P**

Sarhanis P, Pugh DH: Resolution of pre-eclampsia following intrauterine death of one twin.
Br J Obstet Gynaecol 1992 Feb;99(2):159–60

Sartori MT see **Girolami A**

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Satar M, Kozanoglu MN, Atilla E: Identical twins with an autosomal recessive form of spondylocostal dysostosis. Clin Genet 1992 Jun;41(6):290–2
A form of spondylocostal dysostosis, marked by multiple vertebral clefts, costal bifurcation, and fusion was observed in identical male twins whose parents were first cousins. The lack of previous anomalies in the family, the high degree of parental inbreeding and the absence of deformities in a 3-year-old brother indicated an autosomal recessive mode of inheritance.

Schaal JP see **Burguet A**

Schaefer EJ see **Lamon-Fava S**

Schaefer EJ see **Reed T**

Scheffer IE, Baraitser M, Wilson J, Godfrey C, Brett EM: Autosomal recessive microcephaly with severe psychomotor retardation. Neuropediatrics 1992 Feb; 23(1):53–6
Autosomal recessive microcephaly has long been recognized in association with normal early motor development and mild to severe mental retardation. We report three sibling pairs with microcephaly and severe neurological impairment. These cases and other sibling pairs reported in the literature illustrate that microcephaly with spasticity and severe mental retardation may also have autosomal recessive inheritance. Furthermore this severely affected group of patients forms a significant proportion of cases of genetic microcephaly. We looked for specific morphological features to identify these forms of genetic microcephaly for genetic counselling, but failed to find characteristic abnormalities among our group of patients.

Scheller JM, Nelson KB: Twinning and neurologic morbidity. Am J Dis Child 1992 Sep;146(9):1110–3 (63 ref.)
OBJECTIVE--To review the literature regarding neurologic morbidity among twins. RESEARCH DESIGN--Review of medical literature and data from the National Center for Health Statistics. CONCLUSIONS--The twinning rate is increasing concurrent with an increase in the survival of twins. Because twins are more often born prematurely and are of low birth weight, and premature infants are at increased risk for neurologic morbidity, twins are vulnerable to this problem. In addition, twins are more likely to develop brain abnormalities in utero, which is thought to be related to placental vascular anastomoses. Pediatricians should expect more twins in the future with congenital neurologic illness.

Schenker JG see **Mordel N**

Scheuneman D see **Reite M**

Schieken RM see **Goble MM**

Schiffke KA see **Vieregge P**

Schmutz SM see **Plante Y**

Schonberg S see **Jenkins EC**

Schreiber R see **Smith BM**

Schreyer P see **Ron-El R**

Schulman JD see **Pergament E**

Schutgens RB see **Wanders RJ**

Schutte MF see **van de Geijn EJ**

Schwartz D see **Cohen HL**

Schwartz S see **Hogge WA**

Scriver CR see **Chitayat D**

Segal NL: A methodological comment in response to Hepper (1988) [letter] Perception 1992;21(2):277–8

Segal NL: Twinning and pediatric AIDS: alternative explanations [letter] Hum Biol 1992 Aug;64(4):623–4

Seino Y see **Wakita Y**

Selby JV, Reed T, Newman B, Fabsitz RR, Carmelli D: Effects of selective return on estimates of heritability for body mass index in the National Heart, Lung, and Blood Institute Twin Study. Genet Epidemiol 1991;8(6):371–80
In the National Heart, Lung, and Blood Institute Twin Study, body mass index (BMI) was studied at military induction and at three subsequent examinations spanning five decades in a cohort of white, male World War II veterans. At military induction (1940s) and again at the first clinical examination of this study (1969–1973), there was close agreement of three commonly used estimates of heritability (range 0.72 to 0.80), and no evidence of a difference in total variance of BMI between the zygosities. However, at the last two examinations (1980s), the total variance in dizygotic (DZ) twins was significantly greater than that of monozygotic (MZ) twins (P less than 0.01) and these same heritability estimates varied widely. The among-pair estimate of heritability fell to unrealistic negative values, the within-pair estimate rose to values of 1.0 or greater, and the intraclass correlation coefficient estimate was slightly lower than in the entire cohort at baseline. The cause of the unequal zygosity total variance appears to have been nonparticipation at later examinations of MZ twins with extreme values of BMI, with no evidence of a similar selection process influencing DZ twins. This selection process biased the three estimates of heritability, making it difficult to determine which estimate is the most appropriate. Despite these biases, it remains clear that genetic factors contribute substantially to BMI in this population.

Selvaggi L see **Loverro G**

Sentz KK see **Hirsch BA**

Seoud MA, Toner JP, Kruithoff C, Muasher SJ: Outcome of twin, triplet, and quadruplet in vitro fertilization pregnancies: the Norfolk experience. Fertil Steril 1992 Apr;57(4):825–34
OBJECTIVE: To review the maternal morbidity and neonatal morbidity and mortality associated with in vitro fertilization (IVF) multiple pregnancies. DESIGN: Retrospective analysis of data collected from office and hospital records and from questionnaires sent to patients, their obstetricians, and pediatricians. SETTING: Patients (all with private insurance carriers) enrolled in an academic IVF program (The Jones Institute for Reproductive Medicine). PATIENTS, PARTICIPANTS: All IVF pregnancies resulting in one or more gestational sacs on the initial ultrasound at 6 to 7 weeks were reviewed. MAIN OUTCOME MEASURES: The frequency and severity of obstetrical and neonatal complications and the perinatal mortality of IVF twins, triplets, and quadruplets were compared. These were also compared with non-IVF multiple pregnancies. RESULTS: From 1982 to 1990, 629 IVF pregnancies progressed beyond 20 weeks; 115 twins (18.3%), 15 triplets (2.4%), and 4 quadruplets (0.6%). There was a high incidence of antenatal complications such as abortions (30.3%, 42%, and 20%), premature labor (41.5%, 92.3%, and 75%), pregnancy-induced hypertension (17.0%, 38.6%, and 50%), and gestational diabetes mellitus (3.1%, 38.5%, and 25%) for twins, triplets, and quadruplets, respectively. The mean gestational age at delivery was 35.5 +/- 3.7, 31.8 +/- 2.7, and 31.0 +/- 1.7 weeks, respectively. There was also a proportionate progressive increase in neonatal complications. The mean weights were 2,473 +/- 745, 1,666 +/- 441 and 1,414 +/- 368 g, respectively. Twins (22.7%), 64.1% of triplets, and 75% of quadruplets needed admission to the neonatal intensive care unit and remained for an average of 12.0 +/- 2.3, 17.4 +/- 14.0, and 57.8 +/- 17.9 days, respectively. There was no difference in the mean Apgar scores or the

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incidence of congenital malformations in the three groups. The corrected perinatal mortality rates were 38.5, 0.0, and 0.0 per thousand live births, respectively. CONCLUSION: Triplet and quadruplet IVF pregnancies have increased obstetrical and neonatal complications compared with IVF twins. The perinatal mortality and the incidence of congenital malformations are, however, comparable in all three groups.

Shah YG, Gragg LA, Moodley S, Williams GW: Doppler velocimetry in concordant and discordant twin gestations. Obstet Gynecol 1992 Aug; 80(2):272-6
Doppler blood flow studies in 63 pairs of concordant and 17 pairs of discordant twins were compared with those of 277 appropriate for gestational age singleton fetuses. Discordancy was defined as a more than 20% intra-pair actual birth weight difference. The data were divided into five groups: singletons and large and small concordant and discordant twins. Statistical comparisons of the regression lines for the large concordant and discordant twins and the singletons showed no significant differences among the three lines, either in slopes (P = .1) or intercepts (P = .08). Comparisons of the regression lines for small concordant and discordant twins and the singletons indicated a significant interaction among the three lines (P = .01). Additional analysis leads us to conclude that the systolic-diastolic ratio (S/D) decreases with advancing gestational age for all groups except small discordant twins. The S/D of small discordant twins differed significantly from that of singletons and tended to differ from that of small concordant twins.

Shalev E, Zalel Y, Ben-Ami M, Weiner E: First-trimester ultrasonic diagnosis of twin reversed arterial perfusion sequence. Prenat Diagn 1992 Mar; 12(3):219-22
Twin reversed arterial perfusion (TRAP) syndrome sequence is a rare specific anomaly of twin gestation with fused placentae and umbilical anastomosis. This syndrome occurs once in very 35,000-48,000 births and has been described in the second trimester (23-29 weeks of gestation). We report on early sonographic diagnosis (10 and 12 weeks' gestation) of two cases of TRAP sequence, together with their umbilical cord Doppler studies.

Shalev E see **Zalel Y**
Shanley S see **Martin NG**
Shapiro ML see **Cohen HL**
Shattock M see **Christie MR**
Shaw RW see **Curtis P**
Shetty T see **Pueschel SM**
Shibata K see **Fukushima Y**

Shitsukawa K, Terasawa K, Takahashi S, Ino H, Yoshida J: [A case of twin pregnancy associated with transient diabetes insipidus]
Nippon Sanka Fujinka Gakkai Zasshi 1992 Jul; 44(7):881-4 **(Jpn)**

Shokyu Y see **Fukushima Y**

Shulman LP, Elias S, Phillips OP, Dungan JS, Grevengood C, Simpson JL: Early twin amniocentesis prior to 14 weeks' gestation [letter] Prenat Diagn 1992 Jul;12(7):625-6

Silberg JL see **Hewitt JK**
Silberg JL see **Kendler KS**

Silveira TR, Salzano FM, Howard ER, Mowat AP: Extrahepatic biliary atresia and twinning.
Braz J Med Biol Res 1991;24(1):67-71 (16 ref.)
1. Four pairs of discordant twins were observed in a series of 237 extrahepatic biliary atresia patients ascertained in London. 2. The twinning prevalence (1.7%) was as expected considering the ethnic composition of the sample. 3. Out of a total of 17 other twin pairs reported in the literature, only one was concordant for the disease. Since only 17 instances of familial cases have been described, the conclusion is that any influence of genetic factors in this condition is likely to be manifested indirectly, possibly in the form of increased susceptibility of the biliary epithelium to infectious or toxic agents.

Silver K see **Chitayat D**

Silvetti AN, Reynolds OE, Silvetti AN Jr: Bovine embryonic skin xenografts in the repair of full-thickness scalp, skull, and dura defects of separated Siamese twins conjoined by their heads (craniopagus frontalis): a 35-year follow-up report. Transplant Proc 1992 Apr;24(2):627-8

Silvetti AN Jr see **Silvetti AN**
Simard D see **Roberge C**
Simioni P see **Girolami A**
Simon A see **Navot D**
Simpson JL see **Shulman LP**
Sinev EM see **Ozerova NI**
Sipes SL see **Wenstrom KD**
Sjaastad O see **Stovner LJ**

Slemenda CW, Christian JC, Reed T, Reister TK, Williams CJ, Johnston CC Jr: Long-term bone loss in men: effects of genetic and environmental factors. Ann Intern Med 1992 Aug 15;117(4):286-91
OBJECTIVE: To identify environmental factors associated with bone loss in adult male twins and to determine the extent to which shared environmental characteristics affect estimates of the genetic influence on bone loss. DESIGN: A 16-year cohort study. SETTING: A midwestern university hospital. PARTICIPANTS: One hundred and eleven male veterans of World War II or the Korean conflict, born between 1916 and 1927. All were twins, with the sample comprising 48 pairs and 15 persons whose twin brothers were deceased or seriously ill. MEASUREMENTS: Bone mass and environmental characteristics (cigarette smoking, alcohol consumption, physical activity, dietary calcium intake, use of thiazide diuretics) measured at baseline and 16 years later. RESULTS: Rates of radial bone loss averaged 0.45% per year. Those who both smoked and used alcohol at levels greater than the median for the population had a rate of bone loss (10% in 16 years) twice the rate of those who were below the median level for both variables (5% bone loss, P = 0.003). Rates of bone loss were correlated within twin pairs, and these correlations were diminished 25% to 35% by adjustments for environmental influences on bone loss. However, statistically significant within-pair correlations remained (r = 0.4), which did not differ between monozygotic and dizygotic twin pairs after adjustments for smoking, alcohol use, dietary calcium intake, and exercise. CONCLUSIONS: Bone loss in men during mid-life is determined, at least in part, by environmental factors, including smoking, alcohol intake, and, possibly, physical activity. Rates of bone loss were similar within twin pairs, apparently because of a shared environment.

Smith A see **Berker E**
Smith AC see **Poole SR**

Smith BM, Laberge JM, Schreiber R, Weber AM, Blanchard H: Familial biliary atresia in three siblings including twins. J Pediatr Surg 1991 Nov; 26(11):1331-3 (35 ref.)
We report a North American Indian family of five children in which dizygotic twin sisters and a third sibling had biliary atresia. This is in contrast to many reports of discordant biliary atresia in twins. Added to 29 previously documented cases of familial biliary

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atresia, these three cases support the theory that both genetic and acquired factors play a role in the pathogenesis of this disease.

Smith GC see **Munro JM**

Smith SD see **Gilger JW**

Smith SM see **Gilger JW**

Solomon JG: Twins and eating disorders [letter] Am J Psychiatry 1992 Aug;149(8):1122

Sonneveld SW, Correy JF: Antenatal loss of one of twins. Aust N Z J Obstet Gynaecol 1992 Feb; 32(1):10–3

The antepartum loss of a twin with survival of the second twin to delivery was studied in the Tasmanian population from 1980 to 1989 inclusive. No previous study of an Australian population has been reported. This rare complication occurs in 3.5% of twin pregnancies. The outcome of these pregnancies and the outcome for the surviving twin are discussed.

Sorokin Y see **Isada NB**

Spielman R see **Malhotra U**

Stambrook PJ see **Gathof BS**

Stavy M, Terkel J: Interbirth interval and duration of pregnancy in hares. J Reprod Fertil 1992 Jul; 95(2):609–15

The possibility of inducing superfetation in hares by artificial insemination (AI) was investigated. AI performed on various days during the second half of gestation did not result in new pregnancies, but all ongoing pregnancies were terminated 1–4 days after AI. We suggest that copulation during the last week of pregnancy, common among captive hares, may have a similar effect to that of AI in terminating pregnancies and inducing early deliveries. Intervals between successive deliveries that are shorter than the normal duration of gestation do not necessarily indicate superfetation and this phenomenon may be rare among hares in captivity as well as in the wild.

Steele MW, Wenger SL, Deka R, Mulvihill JJ, Sukarachana K: Genetic analyses on a set of parasitic conjoined twins [letter] Am J Med Genet 1992 Apr 1;42(6):856

Steer P see **Levene MI**

Stevenson J: Evidence for a genetic etiology in hyperactivity in children. Behav Genet 1992 May; 22(3):337–44

There has been considerable controversy over the nosology of hyperactivity and attention deficit hyperactivity disorder (ADHD). There have been suggestions that genetic influences may play a role in the origins of individual differences on this dimension or dimensions of behavior and that an understanding of the significance of genetic factors might help to clarify the classification of these disorders. Multiple regression is used to analyze data from a sample of 91 pairs of identical twins and 105 pairs of same sex fraternal twins. The heritability of extreme group membership ($h2g = 0.75$) was significant for activity rated by the mother. The heritability for one of the measures of attention deficit was also significant ($h2g = 0.76$). The results are consistent with a significant genetic contribution to individual differences in activity levels and attention abilities.

Stocchero L see **Mazzoleni S**

Stovner LJ, Cappelen J, Nilsen G, Sjaastad O: The Chiari type I malformation in two monozygotic twins and first-degree relatives. Ann Neurol 1992 Feb;31(2):220–2

The presence of the Chiari type I malformation in 2 adult monozygotic female twins, their mother, and possibly in 2 of their 4 daughters is reported. The diagnosis was made by magnetic resonance imaging and confirmed at the time of surgery in 1 twin. Monozygosity of the twins was proved by DNA typing. The disorder in the present family should probably be classified together with the autosomal dominant craniocervical malformations. Nongenetic factors also seem to be important because the twins were discordant for the extent of herniation of the cerebellar tonsils and the presence of syringomyelia.

Stroufová A see **Mardesič T**

Strowitzki T, Wiedemann R, Korell M, Hildisch S, Hepp H: [Hormonal and ultrasound monitoring of early pregnancy--differential diagnosis of extrauterine pregnancy and multiple pregnancy] Ultraschall Med 1992 Apr;13(2):80–7 (Eng. Abstr.) **(Ger)**

In this study sonographical and hormonal findings in 63 patients with intrauterine singleton pregnancy were compared with 18 patients with multiple pregnancies and 28 patients with ectopic pregnancy. The earliest detection of the intrauterine gestational sac was obtained with a HCG level of 659 mIU/ml. The sonographical development correlated well with HCG values. There was no statistically significant correlation between gestational age and HCG. In multiple pregnancies with sonographical findings comparable to the development in singletons HCG values were remarkably elevated. A discrimination between multiple and ectopic pregnancies by sonographical and hormonal criteria cannot be performed sufficiently in a HCG zone of 1500 mIU/ml. Close sonographical and hormonal follow-up until diagnosis of the intrauterine pregnancy is necessary.

Sukarachana K see **Steele MW**

Suman RK: Isolated flexor pollicis longus palsy in twin sisters treated by brachioradialis transfer. J Hand Surg [Br] 1992 Jun;17(3):373–4

Isolated paralysis of flexor pollicis longus is an uncommon variation of the anterior inter-osseous nerve compression syndrome. Two cases occurring in twin sisters were treated by brachioradialis tendon transfer when no recovery was evident after six months, with good results. Brachioradialis transfer is technically easy to perform, but complete mobilization of the tendon and muscle is necessary to achieve the desired excursion of the muscle-tendon unit.

Sundet JM see **Tambs K**

Swan GE, Carmelli D, Rosenman RH, Fabsitz RR, Christian JC: Smoking and alcohol consumption in adult male twins: genetic heritability and shared environmental influences. J Subst Abuse 1990; 2(1):39–50

This paper examines the heritability of cigarette smoking and alcohol consumption in 360 adult, male twin pair participants (176 monozygotic and 184 dizygotic pairs) in the second exam of the National Heart, Lung, and Blood Institute's Twin Study. Heritability estimates for smoking and alcohol use were calculated both before and after adjustment for shared variance between these behaviors and other characteristics, including coffee consumption, contact between twins, and two psychological traits: anger and activity. The purpose of the analysis was to determine the impact of adjustment for covariates on heritability estimates of smoking and alcohol use. Before adjustment, heritability of both smoking and alcohol use was highly significant and accounted for 52% and 60% of the variance, respectively. After adjustment for covariates, the heritability of smoking remained at 52% while that for alcohol use decreased to 43%. The fact that these estimates remained significant after adjustment for covariates

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leads to increased confidence about the role of genetics in both smoking and alcohol consumption.

Swan GE, LaRue A, Carmelli D, Reed TE, Fabsitz RR: Decline in cognitive performance in aging twins. Heritability and biobehavioral predictors from the National Heart, Lung, and Blood Institute Twin Study. Arch Neurol 1992 May;49(5):476–81
The present study examined the contribution of genetic factors to Digit Symbol performance and its decline in 23 monozygotic twin pairs (mean age at examination 1, 57.1 years) and 21 dizygotic twin pairs (mean age at examination 1, 56.3 years). These men were assessed twice during a 5-year interval as part of the National Heart, Lung, and Blood Institute Twin Study. The prevalence of decline (a change, greater than 1 SD) during the 5-year interval was 35% and 39% for monozygotic and dizygotic twins, respectively. The pairwise concordance for decline was 45% in monozygotic and 8% in dizygotic twin pairs, suggesting a possible role for genetic factors in the decline in Digit Symbol performance in this sample. A comparison of baseline biologic and behavioral characteristics within monozygotic twin pairs discordant for decline in Digit Symbol performance revealed that decliners had higher initial systolic blood pressures, lower serum cholesterol levels, and lower heart rates than nondecliners.

T

Takahashi S see **Shitsukawa K**

Taketomi E, Sakou T, Matsunaga S, Yamaguchi M: Family study of a twin with ossification of the posterior longitudinal ligament in the cervical spine. Spine 1992 Mar;17(3 Suppl):S55–6

Tambs K, Sundet JM, Eaves L, Berg K: Genetic and environmental effects on type A scores in monozygotic twin families. Behav Genet 1992 Jul; 22(4):499–513
Monozygotic (MZ) twin pairs with spouses and children, altogether 787 subjects, completed the Jenkins Activity Survey (JAS). The observed correlations for the various sets of relationships fitted well with biometric models including only parameters for additive genetic effects and, for Type A and Job Involvement, assortative mating. There was no evidence of effects of the family environment (cultural transmission) or genetic dominance (nonadditivity). For all but the Hard Driving and Competitive scale, there was evidence of effects of sex-specific genes. The heritability estimates were, for males and females, respectively, .33 and .39 for Type A, .36 and .48 for Job Involvement, .20 and .52 for Speed and Impatience, and .13 (both sexes) for Hard Driving and Competitive. The estimates given here are deflated by measurement errors and should probably be corrected by multiplying by values in the neighborhood of 1.3. Even after correction, the results suggest that individual differences for Type A and related traits depend more on nonfamilial environment than on genes.

Tanabe H, Tanabe J, Hanazaki H, Hashimoto Y, Kawasaki K: Spectral characteristics of rapid off-response in congenital deuteranomaly in one of monozygotic female twins. Doc Ophthalmol 1992; 80(1):25–30
The spectral sensitivity of the rapid off-response in the electroretinogram was studied in monozygotic female twins. One case was diagnosed as congenital deuteranomaly, and the other was normal. The log ratio of the sensitivity at 480 nm to the sensitivity at 620 nm (log S480/S620) was within the deutan range in the first case and within the normal range in the second. The two case were determined to be different at the retinal receptor level by study of the rapid off-response. This result of the rapid off-response was consistent with the results of the psychophysical examinations.

Tanabe J see **Tanabe H**

Tang TK see **Ko YL**

Tas FJ see **Orlebeke JF**

Taylor SN see **Dickey RP**

Teale P see **Reite M**

Teikari JM, Kaprio J, Koskenvuo M, O'Donnell J: Heritability of defects of far vision in young adults--a twin study. Scand J Soc Med 1992 Jun; 20(2):73–8
A questionnaire to study defects in far vision in the Finnish Twin Cohort Study was sent to 600 twin pairs of 30 and 31 years of age divided equally by gender and zygosity. An excess in female prevalence of defects in far vision was observed (p less than 0.001). Validation of the questionnaire method to assess negative spherical equivalent of refraction was performed by asking the twins to send their last prescription for glasses. Accuracy of the questionnaire method to detect in far vision was tested using a subsample of cases where actual refraction obtained from the prescription for glasses was available. This actual refraction value was compared with the individuals answers to the questions of far vision. Of the subjects 5.5% were false negatives and 1.8% of the individuals were false positives. In 152 pairs one or both twins had a defect in far vision. Under a threshold liability model, the proportion of total (phenotypic) variance in liability attributable to additive genetic effects was 0.91 in this twin data, while no evidence for effects due to dominance was found.

ten Velden JJ see **van de Geijn EJ**

Terasawa K see **Shitsukawa K**

Terkel J see **Stavy M**

Terry JD see **Perkins RP**

Tessen JA see **Wenstrom KD**

Thaler I see **Itskovitz-Eldor J**

Thériault G see **Mauriège P**

Tirtha M see **Datta T**

Tischfield JA see **Gathof BS**

Tizzano EF, Baiget M: High proportion of twins in carriers of fragile X syndrome [letter] J Med Genet 1992 Aug;29(8):599

Toner JP see **Seoud MA**

Torrey EF see **Bracha HS**

Torrey EF see **Ragland JD**

Torrey EF see **Weinberger DR**

Townsend GC, Martin NG: Fitting genetic models to Carabelli trait data in South Australian twins [published erratum appears in J Dent Res 1992 Jul;71(7):following 1460] J Dent Res 1992 Feb; 71(2):403–9
This study aimed to clarify genetic and environmental contributions to Carabelli trait variation on permanent first molar teeth in a large sample of South Australian twins. Estimates of polychoric correlations were obtained between pairs of monozygous (MZ) and dizygous (DZ) twins for Carabelli data and various gene-environment models fitted by a weighted least-squares approach. The favored model included additive genetic effects together with both a general environmental component and an environmental effect specific to each side. An estimate of heritability around 90% indicated a very strong genetic contribution to observed variation. The pattern of correlations for

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MZ and DZ data suggested that further studies involving other types of relatives would be worthwhile for detection of possible non-additive genetic effects of dominance or epistasis.

Traboulsi EI see **Drack AV**

Tremblay A see **Mauriège P**

Truett KR, Eaves LJ, Meyer JM, Heath AC, Martin NG: Religion and education as mediators of attitudes: a multivariate analysis. Behav Genet 1992 Jan; 22(1):43–62

The transmission of social attitudes has been investigated as a possible model of cultural inheritance in a sample of 3810 twin pairs from the Australian National Health and Medical Research Twin Registry. Six social attitude factors were identified and univariate genetic models fitted to scores on each factor. A joint multivariate genetic analysis of the six attitude factors, church attendance, and education indicated that the attitudes were correlated—the same genes and shared environments influenced more than one attitude factor. A current controversy regarding social attitudes is whether the significant loadings on this shared environmental component represent true cultural influences or are actually the genetic consequences of phenotypic assortative mating for church attendance and educational attainment (Martin et al., 1986). In our data, church attendance is almost entirely due to the impact of the shared environment. The large shared environmental component on church attendance also accounts for a substantial part of the family resemblance in social attitudes, suggesting that not all of the apparent cultural effects found in earlier studies can be ascribed to the genetic effects of assortative mating. However, church attendance and education do not completely account for the cultural component. Therefore, effects in addition to church attendance, education, and assortative mating for church attendance and education must be involved in the cultural component of the inheritance of attitudes.

Tsuboi T, Endo S: Genetic studies of febrile convulsions: analysis of twin and family data. Epilepsy Res Suppl 1991;4:119–28

Children with febrile convulsions (FC) including 46 twin pairs, 1913 families including 393 sibling pairs, and 42 three-generation FC kindreds have been studied. Twin studies: (1) The pairwise concordance rate for FC was 69% (18/26 pairs) in monozygotic (MZ) and 20% (4/20 pairs) in dizygotic (DZ) twins (P less than 0.01). (2) The intra-pair similarity of clinical symptoms in 18 concordant MZ twin pairs showed a positive significant correlation, particularly in 4 items—duration of seizure, exogenous factors, intelligence level, and background EEG abnormality. These correlations were greater than those in sibling pairs. (3) No evident cause for discordance was detected in 8 discordant MZ twin pairs, and many dissimilar symptoms were observed in 4 concordant DZ twin pairs. Sibship studies: A large positive correlation of some clinical symptoms was observed in sibling pairs concordant for FC: age at onset of FC, degree of fever, duration of seizure, exogenous factors, and background EEG abnormality ($r = +0.2- +0.6$). Family history analysis: Morbidity risk among near relatives (17% in parents, 23% in siblings) than in second- (6.1%) or third-degree relatives (4.6%). The difference was found between: sibling greater than parents, uncles greater than aunts, male cousins greater than female cousins. Segregation analysis showed maternal preponderance. In 42 three-generation kindreds the morbidity risk was higher in siblings (32%), uncles/aunts (14%), and cousins (6.4%) than in relatives of other probands. Characteristic findings in FC patients with family history: Characteristic findings in FC patients with an FC parent or sibling, compared with those with no family history, were early onset of FC, lower degree of fever, longer duration of seizure, many recurrences, FC recurrence after age 3, and background EEG abnormality. Similar findings were more markedly observed in 42 3-generation kindreds. Mode of inheritance: A multifactorial mode of inheritance for FC receives some support from this study, and the heritability was estimated as 75%.

Tsuji K see **Wakita Y**

Tsunoda H see **Hamada H**

Tului L see **Brambati B**

Tun RY see **Christie MR**

Tun RY see **Lo SS**

Tysk C see **Lindberg E**

U

Uchino H see **Fukushima Y**

Uhlenbrock D see **Hebing B**

Ulsenheimer K: [Legal topics in gynecology and obstetrics. A legal case]
Geburtshilfe Frauenheilkd 1992 Mar;52(3):180–1 **(Ger)**

Unterman TG see **Kazer RR**

Upson B see **Berg K**

Useli C see **Monni G**

V

van Baal GC see **Boomsma DI**

Van Cauter E see **Linkowski P**

van de Geijn EJ, Yedema CA, Hemrika DJ, Schutte MF, ten Velden JJ: Hydatidiform mole with coexisting twin pregnancy after gamete intra-fallopian transfer. Hum Reprod 1992 Apr; 7(4):568–72

The pregnancy of a 31-year-old infertility patient is described. After gamete intra-Fallopian transfer, her pregnancy evolved uneventfully until the 18th week of gestation, when vaginal bleeding occurred. Ultrasonographic findings suggested a molar pregnancy with two live fetuses. At 24 weeks gestation, two male infants were spontaneously delivered. Fetal (46 XY) and molar (46 XX) karyotypes and post-mortem findings were consistent with a bizygotic twin pregnancy associated with a complete hydatidiform mole. The pathogenesis and obstetrical management are discussed.

van Eyck J, Arabin B: Actocardiotocographic monitoring of triplets during vaginal delivery. Am J Obstet Gynecol 1992 Apr;166(4):1293–4

A case is reported in which fetal monitoring during vaginal delivery of triplets was performed with the MT 430 actocardiotocograph. This method provides optimal monitoring of multiple pregnancies because the fetal heart rate tracings of three fetuses, together with recordings of fetal movements and uterine contractions, can be visualized on one display.

Van Lith JM see **Beekhuis JR**

van Roermund CW see **Wanders RJ**

Vauthier-Brouzes D, Lefebvre G: Selective reduction in multifetal pregnancies: technical and psychological aspects. Fertil Steril 1992 May; 57(5):1012–6

OBJECTIVE: To evaluate efficiency and safety of

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a very early transvaginal selective reduction procedure in multifetal pregnancies. DESIGN: Prospective study. SETTING: Obstetric and Gynecology Department, University of Paris VI. PATIENTS: Twenty-two patients with multifetal pregnancies: 14 triplets, 8 quadruplets, and 1 quintuplet. INTERVENTION: Selective embryonic reduction was performed at 7 weeks of amenorrhea under general anesthesia by transvaginal embryo puncture and aspiration. Two embryos were left in place. MAIN OUTCOMES: Pregnancy outcome (immediate or delayed complication, term of delivery, newborns) and psychological impact. RESULTS: No complication occurred. The 22 patients now have delivered at 36.5 weeks of amenorrhea, on average giving birth to 44 neonates with no congenital malformation. If the procedure generates anxiety, it is nevertheless perceived as necessary for the successful outcome of the pregnancy. CONCLUSION: Early mechanical transvaginal embryo reduction performed at 7 weeks of amenorrhea, leaving two embryos is, in our opinion, a simple and safe procedure with no affect on remaining fetuses. It is necessary when there are four or more embryos, and it should also be proposed for triplets. In these circumstances, patients saw reduction as a necessary procedure.

Veilleux A see **Di Lorenzo M**

Verdi GD see **Hersh JH**

Viala JL see **Boulot P**

Vieregge P, Bein G: Concordant Bell's palsy in monozygotic twins [letter] Muscle Nerve 1992 Sep; 15(9):1058–9

Vieregge P, Schiffke KA, Friedrich HJ, Müller B, Ludin HP: Parkinson's disease in twins. Neurology 1992 Aug;42(8):1453–61
Among nine monozygotic (MZ) and 12 dizygotic (DZ) twin pairs in which an index case had typical Parkinson's disease (PD) or PD with associated dementia, three MZ and three DZ pairs were concordant. Three of the six affected co-twins were first diagnosed during the study. Occurrence of PD in families of MZ and DZ index cases was more frequent than expected from population rates. The study underlines the need for personal examination using defined criteria in a cross-sectional twin study on PD. Although the study did not establish a major genetic impact in the etiology of PD, a genetic predisposition for the disease cannot be ruled out for some individuals.

Viken R see **Kaprio J**

Viken R see **Williams CJ**

Vintzileos AM see **Wolf EJ**

Vlietinck R see **Orlebeke JF**

Voet H see **Gross-Isseroff R**

von der Stein B, Podoll K, Greve B, Heinrich K: [Cumulative trauma caused by continued sadistic child abuse in a patient with chronic artefact disease] Fortschr Neurol Psychiatr 1992 Mar;60(3):119–25 (Eng. Abstr.) **(Ger)**
A 37-year old female with borderline personality disorder, who had experienced the cumulative trauma of a history of sadistic child abuse by her mother, developed the symptomatology of chronic factitious illness after an operation necessitated by an accident injury. Relationships between chronic factitious disease and obsession, addiction, perversion and suicidal behaviour are discussed against the background of a literature review.

W

Wakita Y, Narahara K, Tsuji K, Yokoyama Y, Ninomiya S, Murakami R, Kikkawa K, Seino Y: De novo complex chromosome rearrangement in identical twins with multiple congenital anomalies. Hum Genet 1992 Mar;88(5):596–8
A de novo and apparently balanced complex chromosome rearrangement (CCR) was found in monozygotic (MZ) twin infants with multiple congenital anomalies. The rearrangement involved 4 chromosomes with 6 breakpoints including 2p23, 2q13, 2q21.1, 3p23, 11q13.1, and 12q24.1. This seems to be the first report of a CCR in MZ twins. The relationship between this chromosome abnormality and MZ twinning is discussed.

Walcher W see **Adelwöhrer NE**

Waller NG, Reise SP: Genetic and environmental influences on item response pattern scalability. Behav Genet 1992 Mar;22(2):135–52
Numerous studies have examined how genetic and environmental factors determine individual differences on multi-item personality scales. Few studies, however, have examined how genes and the environment influence the route by which individuals obtain their scores on these scales. Specifically, on a multi-item test, dozens of item response patterns result in equivalent total scores, though some response patterns are more likely to be observed than others. For many scales it may be of interest to determine the genetic and environmental influences on the item response patterns, as well as the sum of the item responses. We discuss a latent trait measure of item response pattern scalability, called Zl (Levine and Drasgow, 1982), and investigate the properties of this index from a behavioral genetics perspective. Using a large sample of identical and fraternal twins from the Minnesota Twin Registry (Lykken et al., 1990), item response pattern scalability is shown to be moderately heritable. On the four scales of the Multidimensional Personality Questionnaire (Tellegen, 1982) that were investigated, approximately 20% of the variation in scalability was due to genetic diversity between subjects of our sample. Follow-up analyses, using a factor-analytically based, genotype-environment model of item response behavior, indicated that specific genetic and environmental factors play a substantial role in determining item response pattern variation.

Waller NG, Muthén BO: Genetic Tobit factor analysis: quantitative genetic modeling with censored data. Behav Genet 1992 May;22(3):265–92
Parameters of quantitative genetic models have traditionally been estimated by either algebraic manipulation of familial correlations (or familial mean squares), biometric model fitting, or multiple-group covariance structure analysis. With few exceptions, researchers who have used these methods for the analysis of twin data have assumed that their data were multinormal and, consequently, have used normal-theory estimation methods. It is shown that normal-theory methods produce biased genetic and environmental parameter estimates when data are censored. Specifically, with censored data, (1) normal-theory estimates of narrow-sense heritability are either positively or negatively biased, whereas (2) estimates of shared-familial environmental variance are always biased downward. An alternative method for estimating genetic and environmental parameters from censored

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twin data is proposed. The method is called genetic Tobit factor analysis (GTFA) and is an extension of the Tobit factor analysis model developed by Muthén (Br. J. Math. Stat. Psychol. 42, 241–250, 1989). Using a Monte Carlo design, the performance of GTFA is compared to traditional quantitative genetic methods in both large and small data sets. The results of this study suggest that GTFA is the preferred method for the genetic modeling of censored data obtained from twins.

Walsh-Sukys MC see **Dennery PA**

Walton JM, Gillis DA, Giacomantonio JM, Hayashi AH, Lau HY: Emergency separation of conjoined twins. J Pediatr Surg 1991 Nov;26(11):1337–40 (37 ref.)

Female omphalopagus conjoined twins were successfully delivered vaginally and required emergency surgical separation shortly after birth for gastroschisis. Shared tissue included conjoined bowel; one twin also had a complex cloacal abnormality and patent urachus. A 2-year follow-up is presented. A review of the relevant literature confirms that this is the first example of gastroschisis conjoining omphalopagus twins.

Wanders RJ, Casteels M, Mannaerts GP, van Roermund CW, Schutgens RB, Kozich V, Zeman J, Hyanek J: Accumulation and impaired in vivo metabolism of di- and trihydroxycholestanoic acid in two patients. Clin Chim Acta 1991 Oct 31; 202(3):123–32

Two patients with a suspected peroxisomal disorder on the basis of neurological, craniofacial, hepatological and other abnormalities were studied. The phenotype of both girls was remarkably similar from birth until age 1.5 yr. Detailed studies in plasma revealed normal plasma very-long-chain fatty acids but the presence of di- and trihydroxycholestanoic acids and the C29-dicarboxylic bile acid, all known to occur in plasma from Zellweger patients. These results suggest an isolated defect in the peroxisomal beta-oxidation of the side chains of the cholestanoic acids. Activation of trihydroxycholestanoic acid and beta-oxidation of trihydroxycholestanoyl-CoA, measured in a liver biopsy, were normal, however, as was the peroxisomal beta-oxidation of palmitate. Although the molecular defect remains unknown, the results stress the importance of performing multiple analyses in any patient suspected to suffer from a peroxisomal disorder and indicate that screening for peroxisomal disorders based upon analysis of only plasma very long chain fatty acids with or without analysis of erythrocyte plasmalogen levels, may be inadequate.

Warsof SL see **Santolaya J**

Watanabe T see **Okamura K**

Watts H see **Albert MC**

Weber AM see **Smith BM**

Wedeking-Schöhl H, Behrens O, Mühlhaus K: [Pregnancy follow-up of a twin pregnancy with acardius acephalus] Z Geburtshilfe Perinatol 1992 Mar-Apr;196(2):89–92 (Eng. Abstr.) **(Ger)**

Beginning with the 20th week of gestation a monoamniotic twin pregnancy with acardius acephalus was intensively observed by ultrasound and doppler ultrasound. The acardius only grew until the 24th week of gestation; the fetus underwent a normal development during the entire pregnancy. Doppler ultrasound showed low resistance indices in both umbilical arteries. During the 24th week of gestation the flow in the umbilical artery of the acardius could no longer be registered due to a cessation of development. A normal flow could be registered from the 28th week of gestation until the end of pregnancy in the umbilical artery, aorta fetalis and the art. cerebri med. of the fetus. During the 36th week of gestation the fetus died because of umbilical cord entanglement with the cord of the acardius.

Weiler G see **Risse M**

Weinberger DR, Zigun JR, Bartley AJ, Jones DW, Torrey EF: Anatomical abnormalities in the brains of monozygotic twins discordant and concordant for schizophrenia. Clin Neuropharmacol 1992;15 Suppl 1 Pt A:122A–123A

Weinberger DR see **Ragland JD**

Weiner CP, Naides SJ: Fetal survival after human parvovirus B19 infection: spectrum of intrauterine response in a twin gestation. Am J Perinatol 1992 Jan;9(1):66–8

We report the first known symptomatic survivors of congenital parvovirus infection. One fetus was hydropic and the other was growth retarded. There was no evidence of anemia. The antenatal diagnosis of congenital infection requires a multifaceted approach, which includes serology, cultures, and electron microscopy.

Weiner E see **Shalev E**

Weiner E see **Zalel Y**

Weinraub Z see **Ron-El R**

Weissman A see **Blickstein I**

Wenger SL see **Steele MW**

Wenstrom KD, Tessen JA, Zlatnik FJ, Sipes SL: Frequency, distribution, and theoretical mechanisms of hematologic and weight discordance in monochorionic twins. Obstet Gynecol 1992 Aug; 80(2):257–61

OBJECTIVE: The purpose of this study was to determine the frequency, distribution, and most likely etiology of hematologic and weight discordance in pathologically proven monochorionic twins, and to use this information to reevaluate the neonatally derived definition of the twin–twin transfusion syndrome. METHODS: We reviewed our experience with 97 pathologically proven monochorionic twin pregnancies. The frequency and distribution of weight and hemoglobin–hematocrit (hb–hct) discordance were determined for all twin pairs. Factors that may have contributed to the discordance were identified, and theoretical mechanisms were proposed. RESULTS: All combinations of weight and hb–hct discordance were observed. Thirty-four twin pairs (35%) were discordant for weight. In half of these (17 of 34), the hb and hct were concordant. In 18% (six of 34), the smaller twin had the higher hb–hct, and in 32% (11 of 34), the smaller twin had the lower hb–hct. Twenty-three of 63 size-concordant pairs (36%) were discordant for hb–hct. Ten infants were infected at birth, eight had malformations, and 25 likely suffered an acute transfusion event. CONCLUSIONS: Any combination of weight and hb–hct discordance can occur in monochorionic twins. Acute and chronic twin–twin transfusion, uteroplacental insufficiency, infection, malformations, or other factors may have accounted for the discordance observed. Thorough antenatal evaluation with invasive testing and marker studies (to identify a physiologically unbalanced placental anastomosis) may be necessary to establish an accurate diagnosis. We conclude that weight and/or hb–hct discordance is relatively common in monochorionic twins and in itself is not sufficient to diagnose twin–twin transfusion.

Wesseler K see **Hebing B**

Wexler BE see **Ragland JD**

Whitton A see **Halton J**

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Wiedemann R see **Strowitzki T**
Wiernikowski J see **Halton J**
Wild J see **Levene MI**
Williams CJ, Viken R, Rose RJ: Likelihood-based analyses of longitudinal twin and family data: experiences with pedigree-based approaches [comment] Behav Genet 1992 Mar;22(2):215–23
Substantial progress has been made recently in analyses of longitudinal twin and family data, principally for two reasons. The first is the continuing development of more refined models for describing longitudinal data; the second is the widespread availability of analytic methods (e.g. LISREL) with which to implement these models. Computational restrictions have limited likelihood-based analyses of longitudinal genetic data to analyses of covariance matrices or mean squares; however, advances in computer technology now make it feasible to conduct likelihood analyses of longitudinal pedigree data. We consider potential advantages of using pedigree-based methods. Our initial experiences with the application of these methods to simulated twin data, using the FISHER (Lange, K.L., et al., Genet. Epidemiol. 5:471, 1988) quantitative genetics package, are discussed, with particular attention to practical details such as running times on several computers. Preliminary results of the pedigree-based analyses, including robust estimation methods, convincingly demonstrate the failure of methods assuming the multivariate normal distribution for simulated twin data provided by Carey (this issue).
Williams CJ see **Slemenda CW**
Williams GW see **Shah YG**
Williams PD, Puddey IB, Martin NG, Beilin LJ: Platelet cytosolic free calcium concentration, total plasma calcium concentration and blood pressure in human twins: a genetic analysis. Clin Sci 1992 May; 82(5):493–504
1. We used path analysis and maximum-likelihood model fitting to evaluate the relative contributions of genetic and environmental factors to the relationships observed between level of blood pressure and both total plasma calcium concentration and platelet cytosolic free calcium concentration in 109 twin pairs. 2. Total plasma calcium concentration was positively associated with systolic ($r = 0.26$, P less than 0.001) but not diastolic blood pressure, a relationship which remained significant after adjustment for albumin, age and body mass index. A relationship between platelet cytosolic free calcium concentration and both systolic and diastolic blood pressure ($r = 0.17$ and $r = 0.13$, respectively, P less than or equal to 0.05) was no longer significant after adjustment for age and body mass index. 3. Additive genetic influences, unique environmental effects and age contributed to 60%, 30% and 10% of the variance in systolic blood pressure, respectively. Additive genetic effects explained 78% of the variance in plasma total calcium concentration and at least 48% of the variance in platelet cytosolic free calcium concentration in females and 37% in males. 4. Bivariate factor models provided evidence of genetic, but not environmental, co-variation of total plasma calcium concentration and systolic blood pressure, suggesting that a common genetic factor (or factors) contributes to their univariate relationship. In contrast, there was evidence of environmental, but not genetic, covariation of platelet cytosolic free calcium concentration and systolic blood pressure, suggesting that some of the individual experiences specific to each twin may be causing these two traits to vary together. 5. The possible confounding effects of adiposity and environmental factors should be considered in future studies investigating the role of intracellular calcium levels in the pathogenesis of hypertension.
Wilson J see **Scheffer IE**
Wilson PW see **Lamon-Fava S**
Wilson TM see **Crawfurd MD**
Wisser J see **Nerlich A**
Wolf EJ, Vintzileos AM, Rosenkrantz TS, Rodis JF, Lettieri L, Mallozzi A: A comparison of pre-discharge survival and morbidity in singleton and twin very low birth weight infants.
Obstet Gynecol 1992 Sep;80(3 (Pt 1)):436–9
The perinatal mortality rate of twins is four to 11 times higher than that of singletons, and twins are widely reported to have more morbidity than singletons, mainly because of a higher preterm birth rate. However, it is not clear that live-born preterm birth rate. However, it is not clear that live-born preterm twins suffer greater morbidity than comparable singletons. In fact, twins have been reported to develop pulmonary maturity earlier than singletons, which might result in decreased morbidity relative to comparable preterm singletons. We conducted this retrospective review of 496 consecutive singleton and 104 twin infants weighing 500–1499 g and born alive at 24–31 weeks' gestation to determine whether pre-discharge survival and morbidity in very low birth weight (VLBW) twin infants were greater than those of comparable singletons. The mean (+/- standard deviation) gestational age of the singletons was 27.5 +/- 2.0 weeks and of the twins 27.6 +/- 2.0 weeks. There were no differences in mean gestational age, gestational age distribution, mean birth weight, birth weight distribution, gender, or maternal race between the two groups. The pre-discharge survival rate for twins (77%) was not significantly different than that of singletons (82%). There were no differences between twins and singletons in the incidences of neonatal respiratory distress syndrome (63 versus 71%), pulmonary interstitial emphysema (14 versus 16%), patent ductus arteriosus (28 versus 29%), necrotizing enterocolitis (3 versus 5%), intraventricular hemorrhage (11 versus 16%), and retinopathy of prematurity (11 versus 18%). The incidence of bronchopulmonary dysplasia was significantly less in twins (27 versus 46%; P = .001).(ABSTRACT TRUNCATED AT 250 WORDS)
Wong KK, Lim CT: GIFT triplets and management problems—a case report. Med J Malaysia 1991 Sep; 46(3):294–6
Pregnancies conceived through assisted reproduction can present considerable management problems to the obstetric and paediatric staff. Multiple pregnancies are common. The complication of prematurity increases the morbidity and mortality rates of the neonates.
Wood PD see **Reed T**
Woodhouse CR see **Crawfurd MD**
Wu CW see **Ko YL**

Y

Yajima A see **Okamura K**
Yamaguchi M see **Taketomi E**
Yedema CA see **van de Geijn EJ**
Yokoyama Y see **Wakita Y**
Yonezawa T see **Fukushima Y**
Yoshida J see **Shitsukawa K**
Young BK see **Ordorica SA**

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Z

Zador I see **Isada NB**

Zalel Y, Shalev E, Ben-Ami M, Mogilner G, Weiner E: Ultrasonic diagnosis of mediastinal cystic hygroma. Prenat Diagn 1992 Jun;12(6):541–4
The incidence of cystic hygroma, which represents dilated obstructed jugular lymph sacs, is 1 in 6000 pregnancies. Cystic hygromas can be located in the nuchal area or in any other location. The prenatal ultrasonic diagnosis of a cystic hygroma in the mediastinum is presented.

Zalel Y see **Blickstein I**

Zalel Y see **Shalev E**

Zanardi S see **Girolami A**

Zeman J see **Wanders RJ**

Zer M see **Freud E**

Zetová L see **Mardesič T**

Zigun JR see **Weinberger DR**

Zilberman Y see **Brin I**

Ziubritskiĭ NM see **Arseniuk VV**

Ziv N see **Freud E**

Zižka J see **Pařízek J**

Zlatnik FJ see **Wenstrom KD**

Zöllner N see **Gathof BS**

Zuccaro M see **Mazzoleni S**

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