7 EXTREME WEIGHT LOSS IN THE ADOLESCENT ATHLETE: MISGUIDED DIETING OR A MASK OF ANOREXIA NERVOSA. J.J. Chipman, J.C. Edlin, R.D. Hagan, B.R. Carruth, M. Sol, H.F. Eichenwald. Univ. of Tx. Health Sci. Ctr. at Dallas, Institute for Aerobic Research, Dallas.

"Food aversion in athletes simulating anorexia nervosa" has been described recently. However, psychologic, endocrine and physiologic parameters which differentiate athletes with "food aversion" from those with 1^o anorexia nervosa are poorly defined. We investigated the psychological, endocrine and aerobic function in a late pubertal male with excessive weight loss. A 14.5 y/o male, Tanner Stage IVg, presented with weight loss reaching a nadir of -23% of ideal body weight (total body fat=1.25% by hydrostatic weighing and skinfold determinations). He withdrew from competitive football and extended jogging efforts to 8 km·day⁻¹. Purposeful weight loss was due to misinterpretation of a diet for runners. Psychiatric evaluation revealed a disturbed body image and distorted attitudes toward eating. Hypothalamic dysfunction was confirmed by q20m blood sampling over 24 h. The 24 h mean LH=4.9 mIU/ml and mean testosterone=27.1 ng/dl. Aerobic performance was also abnormal. Resting HR=38 bpm. Bruce treadmill test: performance time=13.0 min (nl for age, 14.1 min) and maximal HR=165 bpm (nl=196 bpm). Maximal $\dot{V}O_2=3.09$ l·min⁻¹ (nl=3.7±0.3 l·min⁻¹). Correction of the above abnormalities was documented during weight gain. We conclude, athletes with excessive weight loss 1) should have psychiatric and aerobic performance monitoring 2) may have hypothalamic dysfunction (a nondiagnostic result) and 3) may have altered aerobic performance - recognized best by bradycardia during maximal exertion.

8 DESYNCHRONIZATION OF LUTEINIZING HORMONE (LH) FROM SLEEP IN ADOLESCENTS WITH POLYCYSTIC OVARY SYNDROME (PCOS).

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PCOS is associated with disordered ovulation, absence of monthly LH surge, and elevated plasma LH. At puberty, the diurnal rhythm of LH secretion normally undergoes a complex ontogeny during which time ovulation begins and becomes cyclic. This study was undertaken to determine if a disturbance in the diurnal rhythm of LH secretion could be defined in adolescents with PCOS. 24 hour profiles of LH secretion were determined in 8 adolescents (age 13-19) with PCOS by measuring plasma LH every 20 minutes and sleep with polygraphic monitoring. Criteria for PCOS included presence of cystic ovaries by laparoscopy or ultrasonography, normal estrogenization, oligoamenorrhea, normal urinary 17-hydroxycorticosteroids and pregnanetriol, minimal or no elevation of urinary 17-ketosteroids, normal thyroid function and no hormonal therapy or other illness. 2 of 8 adolescents (age 13&15) showed a marked LH surge beginning 1-2 hours after awakening and lasting 7-8 hours. This surge was similar to the normal sleep-associated LH rise in mid-pubertal girls except desynchronized from sleep by 8-9 hours. The other 6 adolescents had no marked diurnal variation in LH secretion. 24 hour mean plasma LH levels were elevated in patients with abnormal diurnal variation (38.63 mIU/ml) and in all but one of the others (11, 23, 25, 33, 38, 52 mIU/ml). This study identifies a subgroup of adolescents with PCOS with pubertal LH surges desynchronized from sleep and suggests the possibility of a chronobiological disturbance as an etiologic factor in PCOS.

9 LINEAR GROWTH DURING PUBERTY: IMPACT OF PUBERTAL DEVELOPMENT. Paula M. Duke, J. Merrill Carlsmith, Dennis Jennings, John A. Martin, Sanford M. Dornbusch, Ruth T. Gross, Stanford University School of Medicine, Departments of Pediatrics, Psychology, Sociology, Stanford, California.

Short stature is a frequent complaint of adolescent males. The pediatrician's ability to interpret this concern is largely dependent upon use of standard growth curves. These curves are based only on chronological age and do not reflect the impact of sexual maturation on height. Accordingly, we undertook to revise these curves to enhance their usefulness.

Using National Health Examination Survey data from 3,000 male adolescents, ages 12 to 17, we constructed height curves for each stage of sexual maturation and age. The resulting graphs depict estimated percentiles for height at each stage of sexual maturation from ages 12 to 17.

Applications: a 145 cm 13 year old boy with a Sex Maturity Rating (S.M.R.) of 1, is later in sexual maturation and shorter than his age mates with his height measuring below the 10th percentile on standard height charts. When compared with other S.M.R. 1, 13 year old males, his height is at almost the 25th percentile. For the 150 cm 14 year old boy with a S.M.R. of 2, his percentile moves from 5th-10th percentile on the standard growth curve to approximately the 20th percentile on the curves adjusted for stage of sexual maturation.

Our data provide pediatricians with a more precise way of evaluating adolescent male height and may offer information potentially reassuring to the short, late-maturing adolescent male and his parents.

10 TEENAGE FATHERS: STRESS TRAJECTORY THROUGH PREGNANCY. Arthur B. Elster, Susan Panzarine (spon. by Richard Siegler), University of Utah Medical Center, Dept. of Pediatrics, Salt Lake City, Utah.

Previous work by the investigators demonstrated that some teenage fathers may have difficulty coping with the stresses surrounding pregnancy. The purpose of the present study was to investigate the trajectory of these stresses. Twenty prospective fathers (age range 17-18), were interviewed on an average of 1.5 times during gestation: 4 during 1st trimester (mean=12 wks.), 10 during 2nd trimester (mean=22.5 wks.), and 15 during 3rd trimester (mean=32.5 wks.). All pregnancies were conceived premaritally; 14 teens were married at 1st interview. Using a semi-structured technique, subjects were questioned as to the type of stresses felt at the present time, and during each of the previous trimester intervals. The degree of each stress was rated from 1 (low) to 3 (high). A stress magnitude score was determined by a formula utilizing relative frequency and degree of each stress. The combined magnitude scores for each trimester were 6.05 (1st), 7.02 (2nd), 8.20 (3rd). Stresses were combined into 6 categories. Between 1st and 3rd trimester, concerns regarding mother/child health, vocation-education (predominantly financial), and relationships rose in magnitude, while stresses resulting from the circumstances of pregnancy (predominantly negative responses from parents) declined in magnitude. Concerns of parenthood increased between 1st and 2nd trimester and remained at that level, while miscellaneous concerns rose and then fell. These results demonstrate that the degree and nature of stresses affecting teen fathers change thru gestation.

11 RACE-SPECIFIC PATTERNS OF ABORTION UTILIZATION BY AMERICAN TEENAGERS, 1972-78. Nancy V. Ezzard, Willard Cates, Jr., Centers for Disease Control, Atlanta, Ga., Christopher Tietze, The Population Council, New York. (Spon. by Roger A. Feldman).

Did the nationally increased availability of legal abortion (AB) in 1973 lead to changes in racial patterns of abortion utilization by American teenagers? To obtain nationally representative AB rates (AB/1000 women of a given age) and AB ratios (AB/1000 live births to women of a given age), we used age and race distributions of AB reported annually to the Centers for Disease Control for 1972-78. The univariate totals for teens (age x AB and race x AB) were converted to bivariate distributions (age x race x AB) using iterative adjustment with two reference populations. The AB rate for nonwhite teens increased from 18.1 in 1972 to 54.2 in 1978 (+199%) while that of white teens rose from 11.9 to 23.9 (+101%). During these seven years the relative rank of AB rates remained the same for teens of all age subgroups (<15, 15-17, 18-19 years). The AB ratio for nonwhite teens increased from 188.6 in 1972 to 663.7 in 1978 (+252%) while that of white teens increased from 278.7 to 618.9 (+122%). In contrast to AB rates, relative rankings of AB ratios changed. In 1972, nonwhite teens of all age subgroups had lower AB ratios than white teens of corresponding ages. In 1978, the two youngest groups (<15, 15-17) had approximately equal AB ratios while the AB ratio of the oldest nonwhite teens (18-19) was 18% higher than that of the oldest white teens (708.3 vs. 600.1). Thus, the increased availability of legal AB services was associated with both increased use and more equal utilization of abortion by white and nonwhite teens.

12 NEUROTRANSMITTER MEDIATED RECURRENT VOMITING IN A TEENAGE GIRL. Jordan Finkelstein, Cassandra Matustik, Walter Meyer, George Bryan, Michael Ziegler & Michael Anch. Dept. of Pediatrics and Internal Medicine. University of Texas Medical Branch. Galveston, Texas.

Abdominal pain & vomiting are common complaints in adolescents. This is the third case who responded to treatment altering CNS neurotransmitters. Hyperemesis with wt. loss of 25 lbs. occurred in the first month of pregnancy. Recurrent vomiting between 1 & 9 months was diagnosed as pylorospasm & was not relieved by "drops". At 8 years vomiting started again. During 40 hospitalizations, all tests were normal. Diagnosis was psychogenic vomiting which was unresponsive to phenobarbital, phentoin or chlorpromazine. During an attack, she had vomiting, mild abdominal pain, personality change, hypertension, fever, tachycardia, WBC 10-15,000 with high hGH and abnormal EEG, all of which were normal in symptom free periods. From 13-18 years, she had 25 admissions to UTMB including 1 year on a psychiatric unit. Treatment with chlorpromazine, trifluoperazine, phenobarbital, belladonna, cyproheptadine or loxipane failed. Symptoms, lab data & response to previous therapy suggested a deficiency of CNS catechols or dopamine. Amytriptyline 150 mg/d was started to increase the concentration of these neurotransmitters in CNS. For the next 2 years she had no attacks. Studies during treatment were all normal. 3 weeks after stopping treatment, she had a typical attack. Certain cases of chronic vomiting may respond to drugs which alter CNS neurotransmitters.