ADOLESCENT MEDICINE

●1 ECHOCARDIOGRAPHIC ASSESSMENT OF LEFT VENTRICULAR (LV) FUNCTION IN HEALTHY ADOLESCENTS FOLLOWING MAXIMAL SUPINE EXERCISE. Victor C. Baum, Robert A. Englander, Lynne L. Levitsky, Pritzker Sch. of Med., Univ. of Chicago., Michael Reese Hosp., Dept. of Pediatrics, Chicago, Ill.

To determine echocardiographic responses to exercise in normal adolescents, 26 healthy adolescents (ages 10.7-17.7 yrs) had M-mode echocardiograms of the LV and aorta (Ao) prior to and immediately following maximal exercise on a supine bicycle ergometer. The ventricular septum and LV posterior wall were digitized. Fractional shortening (FS), Ao systolic time intervals (PEP/ET) and approximate velocity of circumferential fiber shortening (Vcf) were calculated. Maximal rate of contraction and relaxation indexed for maximal diameter (dD/dt-sys and dD/dt-dias, diameters/sec) were determined from the digitized trace. The average of 3 resting cycles was compared to the first adequate post-exercise study. All studies were completed within 3 minutes of cessation of exercise. Data are mean ± SE. All values changed significantly following exercise (p<.001).

	FS	Vcf	PEP/ET	dD/dt-sys	dD/dt-dias
pre	.34±.01	1.18±.04	.26±.01	-2.34±.08	3.07±.19
post	.43±.02	2.29±.12	.22±.02	-5.58±.44	6.60±.44

We present normative data on echocardiographic measurements of LV function in healthy adolescents following maximal supine exercise against which data from patients with suspected LV dysfunction can be compared. These data differ from those reported from adults during sub-maximal exercise. This technique is simple, does not involve radiation, and thus may be applied to relatively normal pediatric populations.

●2 EFFECTS OF REFEEDING ON BODY HABITUS IN MALNOURISHED ADOLESCENTS WITH ANOREXIA NERVOSA. Marjorie A. Boeck, George J. Schwartz, Albert Einstein Coll. Med., Montefiore M.C., Dept. of Peds., Bronx, N.Y.

Weight gain is one of the therapeutic goals for adolescents with anorexia nervosa. The quality of such weight gain in terms of tissue deposition has not been studied. We determined the distribution of weight gain between fat and muscle tissue upon refeeding. Percent body fat (from skin fold thickness), % muscle mass (from creatinine excretion) and muscular development (from corrected upper arm diameter) were obtained on 6 malnourished teenagers initially and upon refeeding. Subjects (5 female, 1 male) ranged in age from 13-19 years ($\bar{x}$=15); average weight gain was 5.9 ± 1.3(SE) kg. Two pts., who were the most wasted and gained the most weight (43% and 23% of initial weight, respectively) put on a disproportionate amount of body fat (285,263%). The % muscle mass and upper arm diameter remained essentially constant and considerably below normal for age/sex. The remaining 4 pts. increased their body weight by 8-12% and gained both muscle and fat in similar proportions: the % body fat increased by 27 ± 6 (SE)% and muscle mass by 20 ± 7%. Muscular development calculated from the square of the increment in upper arm diameter increased by 16 ± 4%.

We conclude that there are at least two patterns of weight gain with refeeding. Pts. who were extremely malnourished with severe fat and muscle wasting gained a disproportionate amount of fat, while those who were less malnourished gained by the accretion of similar amounts of fat and muscle. Reasons for the observed differences may relate to variations in fat and muscle wasting, diet, habitus, and type and amount of exercise. Therapeutic goals should consider the quality, as well as quantity, of weight gain achieved during refeeding.

●3 CALCIUM AND BONE MINERAL STATUS OF LACTATING TEENS CONSUMING VARIOUS CALCIUM INTAKES. Gary M. Chan, Kris Westover, Martha McMurry. University of Utah, Department of Pediatrics, Salt Lake City, Utah.

Lactating adolescent mothers have been shown to have decreased bone mineral content (BMC). The present study was to evaluate an increased dietary calcium (Ca) intake on the Ca and BMC of lactating teens. Three groups of women were studied: 14 adolescent (Low Adol) consuming 900 mg Ca (56% RDA), 20 adolescents (High Adol) consuming 1600 or 2000 mg (100 or 125% RDA), and 12 adults consuming 1200 mg (100% RDA). All lactating subjects were studied at 2, 8 and 16 wks postpartum. Serum Ca, phosphorus, magnesium, alkaline phosphatase, 25-OH vitamin D parathyroid hormone (PTH), calcitonin (CT) and albumin remained normal for all 3 groups. By 16 wks, the CT levels were higher in the Low Adol group compared to the High Adol and adult groups (13.78±5.06, M±SD vs 9.94±8.12, 9.13±3.87 pg/ml, p<.05). PTH and CT levels increased during lactation for the Low Adol while the other 2 groups remained unchanged. BMC was similar at 2 wks, but after 16 wks, the Low Adol group had a decrease in BMC of 10% (p<.05). This was significantly different than the High Adol and adult groups which maintained their BMC. All adol dietary Ca and P intakes were correlated with changes in their BMC during lactation (r= 0.45, p<0.01 for Ca; r=0.47, p<.01 for P). By 16 wks, the adult group had a higher BMC than either the Low Adol (1.003 vs 0.866, p<.01) or the High Adol (0.899, p<.02) groups. These results suggest that bone loss during lactation for teens is accompanied by increased PTH and CT levels and that a high Ca intake appears to protect against this bone loss.

†4 LANGUAGE DELAY IN 2 YR. OLD CHILDREN OF ADOLESCENT MOTHERS. Cynthia Garcia Coll, Lori Van Houten, Betty R. Vohr, and William Oh. Brown Univ., Women & Infants Hosp., Dept. of Ped., Providence, RI.

We have previously reported that adolescent mothers are more physical and less verbal with their infants, especially while teaching difficult tasks, and that their infants vocalize less by 8 months of age. Are children of adolescent mothers at risk for language delay? The present study hypothesized that 2 yr. old children of adolescent mothers (CAM) would have lower receptive and expressive language scores and that these scores would be related to multiple social and demographic high risk factors. Twenty primiparous, Caucasian, low to middle class mothers (half ≤ 17 years of age at child's birth) and their 2 yr. old children were studied. The Caldwell Home Inventory was scored by an unbiased observer during a two-hour home visit. The Bayley Scales (MDI and PDI) and the Mullen Scales of Early Learning (Language Expressive (LEO) and Language Receptive (LRO)) were administered by another unbiased examiner during a clinic visit. Tympanography was performed and sociodemographic information was obtained. CAM had lower LRO (p<.01) and LEO (p<.001) scores, but no differences were observed in MDI, PDI and tympanograms. Children whose mothers possess 2 or more of the following: ↓ maternal age, ↓ SES, ↓education, ↓family support, or ↓ HOME total score had lower LRO (p<.001) and LEO (p<.01) scores. We conclude that ↓ CAM are at risk for language delay which is related to multiple social and demographic risk factors associated with adolescent childbearing.

5 BEACH PARTY: DEPRESSION IN ADOLESCENTS AND YOUNG ADULTS IN A RESORT COMMUNITY. Carolyn L. Gould, Richard L. Gorman, Marc S. Jacobson (Spons. by Felix P. Heald). From the Department of Pediatrics, University of Maryland, School of Medicine, Baltimore.

Depression and suicide are recognized as major problems among adolescents and young adults. Little is known of the epidemiology and risk factors associated with depression. We studied the prevalence of depression in a presumably low risk group. The study was conducted at a general youth clinic in Ocean City, Maryland between June 3, 1984 and September 2, 1984. This clinic serves teen and young adult summer workers, vacationers and some permanent residents. All patients between the ages of 13 and 25 were asked to complete the CES-D depression scale. This is a standardized survey instrument which measures depressive symptomatology among general populations. Demographic data and diagnosis were abstracted from the medical record. 581 patients returned a valid questionnaire. Data collection was complete for 94% of the questionnaires. Overall, 29% of our sample scored in the depressed range. This is significantly greater than the 17% noted in the general population (p<0.05). Depression was not related to the duration of residence at the resort. It was also unrelated to the patient's socioeconomic status, educational level or age. Females were significantly more depressed than males. The only diagnosis which was significantly related to depression was pregnancy. We conclude that depressive symptomatology is a significant problem among adolescents and young adults but that its presence in specific patients is not predictable.

6 CONTRACEPTIVE COMPLIANCE IN THE PRIVATE SECTOR, Estherann Grace, S. Jean Emans, Elizabeth R. Woods (Sponsored by Warren Grupe). Children's Hospital, Harvard Medical School, Boston, MA.

Erratic contraceptive usage is a major factor in teenage pregnancy. Many studies have addressed the predictors of non-compliance in the use of oral contraceptives in adolescent clinics. This study was designed to focus on the previously ignored private sector, examining their contraceptive behaviors and predictors of their compliance. Patients from a suburban private practice of adolescent medicine were compared to the adolescent clinic population of The Children's Hospital. Profiles commonly associated with contraceptive compliance were recorded at the initial and return visits. Study subjects were randomly assigned to 2 groups receiving either simplified or detailed instructions on pill usage and management of bleeding and amenorrhea. All patients were provided 3 packs of Norinyl 1+35 and scheduled for a 3 month return visit. 51 private and 60 clinic patients (15-22 yrs) were studied. Of the private patients 42 made their own appointments, 29 without parental knowledge; 77% were sexually active before first visit, 30% having never used contraception. 82% of private and 47% of clinic patients returned at 3 months. Prior completion of a course of antibiotics did not predict O.C. compliance. The type of instruction (simplified vs. detailed) did not affect pill usage (p=.10). The many epidemiologic factors associated with receiving health care in the private sector were major determinants of compliance (p<.001).