ABSTRACTS

Beck, Paul (Endocrinol. Div., Dept. of Med.., Univ. of Colorado Sch. of Med., Denver, Colo.): CONTRACEPTIVE STEROIDS: MODIFICATIONS OF CARBOHYDRATE AND LIPID METABOLISM. Metabolism *22*:841-55, June 1973.

Effects of contraceptive steroids on carbohydrate and lipid metabolism are related to age and predisposition to metabolic disease of the recipient, as well as to the amounts and proportions of estrogen, nortestosterone and progesterone derivatives in the preparations employed. In healthy young women, the separate administration of synthetic estrogen, nortestosterone or progesterone derivatives does not alter glucose or insulin concentrations following overnight fasting or glucose loading. Concurrent administration of mestranol or ethinyl estradiol with a nortestosterone derivative results in deterioration of glucose tolerance. This effect is enhanced with aging or in those with reduced pancreatic reserve. Deterioration of glucose homeostasis does not occur frequently in insulin-dependent diabetics using birth control pills. Concurrent mestranol-nortestosterone derivative administration increases the insulin response to a glucose load in normal women and in monkeys. This effect is not observed with individual contraceptive steroids or with concurrent synthetic estrogen-progesterone derivative preparations. Estrogen increases the fasting serum triglyceride concentrations, while nortestosterone derivatives counteract the hypertriglyceridemic effects of estrogen. Steroid-induced lipid changes appear to be due primarily to increased hepatic production of triglycerides, although plasma clearance of triglycerides seems to be reduced by the estrogen component of contraceptive steroids. Cholesterol levels tend to decrease in women over forty and increase in women under forty years of age during the use of birth control pills. When increases in cholesterol occur, they appear to be related to the amount of nortestosterone or progesterone derivative used. The possible relationship of these complex alterations in carbohydrate-lipid metabolism to the long-term development of cardiovascular disesae cannot be assessed at this time. C.R.S.

Berkman, James; and Rifkin, Harold (Lab. and Med. Div., Montefiore Hosp. & Med. Center, Bronx, N.Y., and the Dept. of Lab., Long Island Jewish-Hillside Med. Center, New Hyde Park, N.Y.): UNILATERAL NODULAR DIABETIC GLOMERULOSCLEROSIS (KIMMELSTIEL-WILSON): REPORT OF A CASE. Metabolism *22*:715-22, May 1973.

An unusual case of unilateral nodular diabetic glomerulosclerosis is described in a patient with arteriosclerotic occlusion of the main renal artery and ischemic atrophy of the involved kidney. The differences observed in the two kidneys, studied at postmortem examination, can be attributed to the underlying hemodynamic alterations associated with the vascular lesions. C.R.S.

Block, M. B.; Rosenfield, R. L.; Mako, M. E.; Steiner, D. F.; and Rubenstein, A. H. (Depts. of Med., Ped. and Biochemistry, Univ. of Chicago Sch. of Med., Chicago, Ill.): SEQUENTIAL CHANGES IN BETA-CELL FUNCTION IN INSULIN-TREATED DIABETIC PATIENTS ASSESSED BY C-PEPTIDE IMMUNOREACTIVITY. N. Engl. J. Med. *288*:1144-48, May 31, 1973.

Because of antibody formation soon after initiation of insulin therapy, it has been difficult to determine if a patient recovers the ability to make and secrete insulin during a remission. Since the beta cell also secretes proinsulin and C-peptide (which connects the alpha and beta chains) the authors used C-peptide immunoreactivity to measure beta cell function in three patients during relapses and remissions in their diabetic state. During the remissions C-peptide immunoreactivity increased in all three patients and decreased during the relapses. The C-peptide immunoreactivity was predominantly in the proinsulin peak in two patients and in the C-peptide peak in the remaining patient. This interesting study adds to the growing body of evidence indicating that shortly after diabetes mellitus becomes evident clinically there may be significant improvement in beta cell function in both the adult and juvenile diabetic. H.N.

Burns, Robert E.; and Whitehouse, Fred W. (Dept. of Dermatol. and Div. of Metab., Henry Ford Hosp., Detroit, Mich.): EVIDENCE FOR IMPAIRED GLUCOSE TOLERANCE IN UNCOMPLICATED PSORIASIS. Arch. Dermatol. *107*:371-77, March 1973.

Verbatim summary. In a small but highly selected series of patients with uncomplicated psoriasis we found four patients with abnormal results on an oral glucose tolerance test (OGTT) and thirteen of thirty-four patients (38 per cent) with a normal OGTT value had an abnormal cortisone glucose tolerance test (CGTT) result. This degree of abnormal glucose tolerance mimics the frequency of impaired tolerance in the close relatives of known diabetics. While our findings are preliminary, they are unique in that only uncomplicated psoriatics were studied. On the basis of our findings, we believe that the clinician would be well advised to evaluate each psoriasis patient for diabetes and to be alert to diabetes developing when selecting treatment for, and in observing, the patient with psoriasis.

Cameron, John L.; Capuzzi, David M.; Zuidema, George D.; and Margolis, Simeon (Depts. of Surg. and Med., Johns Hopkins Med. Inst., Baltimore, Md.): ACUTE PANCREATITIS WITH HYPERLIPEMIA: THE INCIDENCE OF LIPID ABNORMALITIES IN ACUTE PANCREATITIS. Ann. Surg. *177*:483-89, April 1973.

Forty-eight patients with acute pancreatitis were studied and results compared with thirty-four patients with abdominal pain not due to pancreatitis. Ten patients with acute pancreatitis had lactescent serum and elevated triglycerides. Eight additional patients had elevated serum triglycerides without lactescent serum. All patients with lactescent serum demonstrated type I or type V patterns on lipoprotein electrophoresis. Serum triglycerides were elevated in three patients, but none had lactescent serum. Decreased postheparin lipolytic activity (PHLA) and PHLA inhibition were observed in pancreatitis and control patients, but bore no consistent relationship to triglyceride levels.

Lipid abnormalities appear to be frequent with acute pancreatitis. The authors suggest that in view of the known frequency of pancreatitis in familial types I and V hyperlipoproteinemias, and in view of followup studies on their patient demonstrating persistent abnormalities in lipid transport (to be published), lipids may play a role in the pathogenesis of acute pancreatitis. P.S.R.

Chaudhary, M. Asghar; and Olsen, Ward A. (Gastroenterol. Res. Lab., Madison V.A. Hosp., Dept. of Med., Univ. of Wisconsin, Madison, Wisc.): JEJUNAL DISACCHARIDASE ACTIVITY IN MATURITY ONSET DIABETES. Am. J. Dig. Dis. *18*: 199-200, March 1973.

Verbatim summary. Because intestinal disaccharidase activity is elevated in experimental diabetes of rats, these enzymes were measured in small bowel biopsies from a group of patients with maturity onset diabetes and a group of controls. There was no difference in disaccharidase activity between the two groups, and the authors conclude that in man, maturity onset diabetes not requiring insulin therapy does not affect intestinal disaccharidase activity.

Curtis-Prior, P. B. (Dept. of Med., Guy's Hospital Med. Sch., London): LIPOLYTIC EFFECTS OF SERUM AND PLASMA ON ISOLATED FAT CELLS OF THE RAT IN VITRO. Diabetologia 9:158-60, April 1973.

Verbatim summary. Serum and plasma obtained from fasted rats were examined for their capacity to promote glycerol release from isolated fat cells of the rat in vitro. Dose response curves indicated that the lipolytic potencies of serum and plasma were very similar. Plasma comparison experiments suggested that lipolysis promoted by this circulating agonist had a requirement for calcium ions. Since adrenaline can enhance lipolysis in a calcium-free medium, the lipolytic capacity of serum and plasma could not be simply explained in terms of circulating catecholamines. The concentrations of glycerol or free fatty acids did not increase when serum or plasma were incubated in the absence of fat cells.

Dean, P. M. (Dept. of Pharmacol., Univ. of Cambridge, Med. Sch., Hills Road, Cambridge, England): ULTRASTRUCTURAL MORPHOMETRY OF THE PANCREATIC β-CELL. Diabetologia 9:115-19, April 1973.

Verbatim summary. Standard stereological methods have been used to determine the morphometric parameters of organelles contained in the β-cells of mouse pancreas. Sectioned material from ten islets was analyzed at three levels of magnification in the electron microscope. Quantitative data were obtained about the volume number and surface area of the various cytological components and were expressed as density per $cm.^3$ of tissue and as absolute dimensions for the average β-cell. The organelles studied were the nucleus, cytoplasmic ground substance, rough and smooth endoplasmic reticulum, the ribosomes, mitochondria, β-granules and microtubules.

Hecht, Arthur; Gershberg, Herbert; and Hulse, Mildred (Dept. of Med., New York Univ. Sch. of Med., and Bellevue Hosp., New York): EFFECT OF CHLORPROPAMIDE TREATMENT ON INSULIN SECRETION IN DIABETICS: ITS RELATIONSHIP TO THE HYPOGLYCEMIC EFFECT. Metabolism *22*:723-33, May 1973.

The insulin secretory response to intravenous glucose was examined serially in patients during chronic chlorpropamide therapy. The mean insulin level at five minutes after glucose increased within one week and reached its highest level within one month. The increment over the fasting level increased similarly, but the mean levels at 20, 30, and 60 minutes did not change after treatment. In diabetic patients with fasting hyperglycemia, the mean blood glucose levels decreased during treatment with chlorpropamide, even when an early response in insulin secretion could not be demonstrated. Since a decrease in blood sugar may occur without any change in insulin secretion in some patients it is suggested that the improvement in early insulin secretion may be secondary to a general improvement in carbohydrate metabolism. C.R.S.

Hellman, B.; Sehlin, J.; and Täljedal, I-B. (Dept. of Histology Univ. of Umeå, Sweden): THE PANCREATIC β-CELL RECOGNITION OF INSULIN SECRETAGOGUES. IV. ISLET UPTAKE OF SULFONYLUREAS. Diabetologia 9:210-16, June 1973.

Verbatim summary. The study was aimed at testing the hypothesis that sulfonylureas do not readily penetrate the pancreatic β-cells but more probably stimulate insulin release by a direct action on the β-cell plasma membrane. Uptake of radioactively labeled tolbutamide and glibenclamide by microdissected pancreatic islets of obese hyperglycemic mice was compared with the uptake of 3-O-methyl-D-glucose, to which the β-cells are permeable. In contrast to tolbutamide, glibenclamide was taken up in amounts exceeding the 3-0-methyl-D-glucose space of islets incubated in the absence of serum albumin. Uptake of the sulfonylureas was easily reversible. It was depressed by serum albumin, whereas glucose, leucine or diazoxide had no effects. Antimycin A, *p*-chloromercuriphenylsulfonic acid and chlorpromazine, all of which increase the uptake of extracellular space markers, strongly stimulated the islet uptake of tolbutamide and glibenclamide but had no effect on the uptake of glibenclamide by subcellular particles of homogenized islets. The results suggest that sulfonylureas bind reversibly to islet tissue but are normally restricted to the outside of β-cells.

Laurian, L.; Oberman, Z.; Harel, A.; Cordova, T.; and Herzberg, M. (Depts. of Endocrinol. and Clin. Biochem., Municipal-Government Med. Center, Ichilov Hosp., Tel Aviv, Israel): CHANGES IN SERUM CORTISOL, GLUCOSE AND FREE FATTY ACID LEVELS DURING TOLBUTAMIDE-INDUCED HYPOGLYCEMIA IN OBESE WOMEN. Israel J. Med. Sci. *8*:1817-22, 1972.

Verbatim summary. An attenuated response of serum cortisol to tolbutamide-induced hypoglycemia was observed in obese women. The serum glucose level was significantly higher sixty minutes after tolbutamide administration in the obese than in the normal weight control subjects. Free fatty acids rose to a significantly higher level 120 minutes after tolbutamide injection in obese subjects. The response of serum cortisol levels can be compared to the similarly attenuated response of growth hormone levels to hypoglycemic stimuli in obese people: it is suggested that this results from underresponsiveness of the hypothalamopituitary centers in obese subjects.

Levy, R. I.; Fredrickson, D. S..; Stone, N. J.; Bilheimer, D. W.; Brown, W. V.; Glueck, C. J.; Gotto, A. M.; Herbert, P. N.; Kwiterovich, P. O.; Langer, T.; LaRosa, J.; Lux, S. E.; Rider, A. K.; Shulman, R. S.; and Sloan, H. R. (Molecular Disease Branch, Natl. Heart and Lung Inst., N.I.H., Bethesda,

Md.): CHOLESTYRAMINE IN TYPE II HYPERLIPOPROTEINEMIA. A DOUBLE-BLIND TRIAL. Ann. Intern. Med. 79:51-58, July 1973.

Cholestyramine (16 gm. per day) was given to forty-seven outpatients with primary type II hyperlipoproteinemia on low cholesterol, isocaloric diets over a fourteen-week period. The effects were compared with a placebo in a double blind clinical trial. The results showed a statistically significant difference in the response of both cholesterol and low-density lipoproteins to cholestyramine therapy as compared to placebo administration. Mean cholesterol and low-density lipoprotein concentrations were, respectively, 20.6 per cent and 27.3 per cent lower at the end of the cholestyramine treatment period than the means at the end of the placebo period. Plasma triglyceride, high-density lipoprotein cholesterol and very low density lipoprotein cholesterol concentrations did not change significantly during the study. After cholestyramine withdrawal, plasma levels of cholesterol and low-density lipoprotein cholesterol returned to within 10 per cent of baseline levels by one week, but some effects persisted for up to four weeks. Cholestyramine had its greatest effect during the first week of therapy; however, some lipid-lowering effects lasted throughout the four week trial period. The amount of cholesterol-lowering effect of cholestyramine was directly proportional to the initial plasma cholesterol and low-density lipoprotein levels. Cholestyramine in relatively high doses, thus, appears to lower plasma cholesterol and low-density lipoproteins in patients with type II hyperlipoproteinemia with relatively few adverse side effects. F.G.B.

Loubatières-Mariani, M. M., Loubatières, A. L.; and Chapal, J. (Inst. of Biol., Montpelier, France): ANALYSIS OF THE STIMULATING ACTION OF TOLBUTAMIDE ON THE SECRETION OF INSULIN USING MANNOHEPTULOSE AND DIAZOXIDE. Diabetologia 9:152-57, April 1973.

Verbatim summary. The stimulating action of tolbutamide on insulin secretion presents two components; the first is independent of the presence of glucose in the medium which perfuses the beta cells; the second is, on the contrary, dependent upon glucose. D-mannoheptulose and diazoxide permit the dissociation of these two components; the antagonistic effect of the first exerts itself uniquely on that part of the stimulating action of tolbutamide which is gluco-dependent; on the contrary, the antagonistic effect of the second exerts itself on both phases of the stimulating action of the sulfonamide.

McCarroll, A. M.; and Buchanan, K. D. (Department of Medicine, Queen's University, Belfast, Ireland): PHYSIOLOGICAL FACTORS INFLUENCING INSULIN CLEARANCE BY THE ISOLATED PERFUSED RAT LIVER. Diabetologia 9:174-77, June 1973.

Verbatim summary. Hepatic insulin clearance was studied in normal male and female Wistar rats, using the isolated liver perfusion technique and the dextran coated charcoal radioimmunoassay for insulin. The following results were obtained: 1. In male rats there was a progressive increase in clearance with increasing body weight, liver weight and age. 2. In adult female rats clearance was significantly greater than in comparable males, but no relationship between liver weight and clearance was observed. 3. With each increase in insulin concentration there was an apparent decrease in clearance.

Martin, Malcolm M.; and Martin, Arline L. A. (Dept. of Pediat., Sch. of Med., Georgetown Univ., Washington, D.C.): OBESITY, HYPERINSULINISM, AND DIABETES MELLITUS IN CHILDHOOD. J. Pediatr. 82:192-201, 1973.

Verbatim summary. Plasma glucose, immunoreactive insulin, and growth hormone following oral glucose were compared in forty-two obese and thirty normal-weight children. Twelve (28 per cent) of the obese children had chemical diabetes, and a further eleven (26 per cent) had significant impairment of mean carbohydrate tolerance. All but the youngest exhibited hyperinsulinemia. There were no clear divisions between normal and abnormal carbohydrate tolerance or insulin response in the obese children, but there was a general tendency toward increasing hyperinsulinemia and decreasing carbohydrate tolerance with age and duration of obesity. Age of onset or degree of obesity did not relate to carbohydrate intolerance, and hyperinsulinemia did not relate to a family history of diabetes. Significant carbohydrate intolerance was seen only in association with a delay in the attainment of peak insulin concentration. Growth hormone was lower in the obese children than in the normal-weight control subjects, but the rise during the latter part of the glucose tolerance test was significantly greater in the obese children with chemical diabetes than in those with normal carbohydrate tolerance.

Mason, G. D.; and Scott, D. (Dept. of Physiol., Rowett Res. Inst., Bucksburn, Aberdeen): RENAL EXCRETION OF POTASSIUM AND POTASSIUM TOLERANCE IN THE PIG. Q. J. Exp. Physiol. 57:393-403, 1972.

Verbatim summary. Young pigs given supplements of KCl in the food excreted the additional KCl in the urine, indicating the importance of the kidney in the regulation of potassium excretion. Intravenous infusion of KCl increased the concentration of potassium in the plasma and the rate of excretion of potassium in the urine. This increase was proportional to infusion rate, and in some experiments the amount of potassium excreted in the urine exceeded the amount filtered at the glomerulus, demonstrating net secretion of potassium by the renal tubule. Urinary excretion of sodium was markedly increased during KCl infusion. After pigs had been given a diet containing supplementary KCl for six days, their ability to excrete potassium in the urine in response to intravenous KCl infusion was not altered although the sodium diuresis was much reduced. Intravenous infusion of KCl into acidotic pigs resulted in a rise in the rate of excretion of potassium in the urine of less than half that seen in pigs in normal acid-base balance given the same rate of infusion. Glomerular filtration rate and the amounts of potassium filtered at the glomerulus during KCl infusion were unaffected by acidosis, which suggests that the lowered excretion of potassium in urine seen in acidotic pigs was the result of reduced tubular secretion.

Pearse, A. G. E.; Polak, J. M.; and Heath, C. M. (Dept. of Histochem., RPMS, Hammersmith Hospital, W12 OHS England): DEVELOPMENT, DIFFERENTIATION AND DERIVATION OF THE ENDOCRINE POLYPEPTIDE CELLS OF THE MOUSE PANCREAS: IMMUNOFLUORESCENCE, CYTOCHEMICAL AND ULTRASTRUCTURAL STUDIES. Diabetologia 9:120-29, April 1973.

Verbatim summary. Studies on the developing mouse pancreas indicate that neuroectodermal cells from the neural crest,

identifiable by their APUD-FIF characteristics, colonize the foregut at around the tenth day. Carried into the pancreatic anlagen, their primitive pleomorphic granules are progressively replaced by spherical granules, which are ultimately (around sixteen days) identifiable as of A, B or D type. Insulin and glucagon are first demonstrable, by immunofluorescence, at the fourteenth day, at which time zymogen granules are detectable by electron microscopy. It is postulated that the neuroectodermal cell of the neural crest may be the precursor of some or all of the three known endocrine cells of the pancreatic islets. In the case of the A and D cells, present evidence is considered sufficiently strong to make this a tenable hypothesis.

Permutt, M. Alan; Kelly, J.; Bernstein, R.; Alpers, D.; Siegel, B.; and Kipnis, D. (Depts. of Med. and Radiol., Washington Univ. Sch. of Med., St. Louis, Mo.): ALIMENTARY HYPOGLYCEMIA IN THE ABSENCE OF GASTROINTESTINAL SURGERY. N. Engl. J. Med. *288*:1206-10, June 7, 1973.

The authors studied three patients with symptomatic postprandial hypoglycemia who had not had prior gastrointestinal surgery. They did not have diabetes mellitus, although all three had a family history of diabetes. Oral glucose tolerance tests revealed a hyperglycemic peak greater than normal in two out of the three patients, followed by a sharp fall leading to hypoglycemia at three hours. The plasma insulin response in all three patients was initially normal but rose to far above normal during the second hour. Although gastric emptying was normal, the rate of duodenal glucose absorption appeared to be increased. Phenformin corrected the abnormal responses to the oral glucose tolerance test and the insulin response, leading the authors to postulate that hypoglycemia was due to intestinal factors. H.M.

Ross, J. P.; and Kitts, W. D. (Dept. of Animal Science, Univ. of British Columbia, Vancouver, British Columbia): RELATIONSHIP BETWEEN POSTPRANDIAL PLASMA VOLATILE FATTY ACIDS, GLUCOSE, AND INSULIN LEVELS IN SHEEP FED DIFFERENT FEEDS. J. Nutr. *103*:488-93, April 1973.

Postprandial changes in the concentration of plasma volatile fatty acids (VFA), glucose and insulin were studied at two hour intervals in mature wethers fed barley, hay or an equal mixture of barley and hay. The plasma constituents which increased after feeding were insulin, glucose and propionate for sheep fed barley; glucose, propionate, acetate and isobutyrate for sheep fed hay; and glucose, acetate, propionate, butyrate and insulin for sheep fed barley and hay. Simple and multiple regression analyses were carried out relating plasma glucose and VFA to plasma insulin within each dietary regimen. The simple regression R^2 values that were significant for each of the feeds were as follows: barley and hay, glucose 50.4 per cent, acetate 22.6 per cent, propionate 6.1 per cent, butyrate 59.2 per cent; hay, isobutyrate 22 per cent; barley, butyrate 59.1 per cent. These results and the results of multiple regression analyses indicate that butyrate and isobutyrate were the most important circulating VFA with respect to their relationship to plasma insulin levels in the study. T.J.M.

Rudo, Neil D.; and Rosenberg, Irwin H. (Sect. of Gastroenterol., Dept. of Med., Pritzker Sch. of Med., Univ. of Chicago, Chicago, Ill.): CHRONIC GLUCAGON ADMINISTRATION ENHANCES INTESTINAL TRANSPORT IN THE RAT. Proc. Soc. Exp. Biol. Med. *142*:521-25, February 1973.

Verbatim summary. Hyperglucagonemia, induced experimentally in rats by six hourly injections of glucagon, resulted in increased intestinal transport of amino acids and sugar, as measured by the everted ring technic. Glucagon administration enhanced both accumulation and rate of uptake into the intestinal rings. The effect was observed after a lag of two days and increased thereafter with the length of treatment. Glucagon added in vitro was without effect.

This experimental system, like diabetes and partial starvation, provides a technic for studying the effect of relative or absolute hyperglucagonemia on intestine.

Schatz, H..; Katsilambros, N.; Hinz, M.; Voigt, K. H.; Nierle, C; and Pfeiffer, E. F. (Dept. of Endocrinol. and Metab., Center of Intern. Med. and Pediatr., Univ. of Ulm, Ulm/Donau, Germany): HYPOPHYSIS AND FUNCTION OF PANCREATIC ISLETS. II. THE EFFECT OF SUBSTITUTION WITH GROWTH HORMONE AND CORTICOTROPHIN ON INSULIN SECRETION AND BIOSYNTHESIS OF PROINSULIN AND INSULIN IN ISOLATED PANCREATIC ISLETS OF HYPOPHYSECTOMIZED RATS. Diabetologia *9*:140-44, April 1973.

Verbatim summary. Hypophysectomized rats were supplied with varying doses of human or porcine growth hormone (GH) as well as with ACTH for six or twelve days. Hypophysectomy was performed in animals of 80 or 170 gm. body weight either twelve or four weeks prior to the onset of the therapy. Increase in weight and the width of the epiphyseal cartilage were determined; insulin secretion and biosynthesis of proinsulin and insulin were investigated in isolated pancreatic islets of the animals.

No differences were found between the effects of human and porcine GH preparations. Weight gain was similar in rats which had been hypophysectomized at a weight of 80 gm. either twelve or four weeks prior to the substitution. Secretion and biosynthesis of insulin, which were both found to be reduced in isolated islets of untreated, hypophysectomized rats, were improved or normalized after substitution with GH (1 mg./kg./day) for twelve days. On the other hand, therapy with GH for six days, even in tenfold daily dose (10 mg./kg.), was ineffective in all rats which had been hypophysectomized at a weight of 80 gm. Normalization of lowered levels of blood sugar was the only positive effect observed after administration of ACTH for six or twelve days.

It appears from our findings that, in contrast to the administration of ACTH, GH given to hypophysectomized rats for a longer period in relatively low doses may normalize both reduced secretion and biosynthesis of insulin.

Sharma, Raj K.; Collipp, Platon J.; Thomas, Joseph T.; and Maddaiah, Vaddanahally T. (State Univ. of N.Y. and Nassau County Med. Center, East Meadow, N.Y.): ABNORMAL GLUCOSE METABOLISM IN DIASTROPHIC DWARFISM. J.A.M.A. *222*:1175-77, November 27, 1972.

Verbatim summary. A case study details the clinical, biochemical, and roentgenographic findings in a diastrophic dwarf. The clinical findings were scoliosis and lordosis of the spine, club feet, cleft palate, dysplastic hips, and flexion contractures of knee joints and short extremities. Biochemical abnormalities observed were high cholesterol level, abnormal glucose tolerance, low growth hormone levels, and abnormal excretion of xanthurenic and kynurenic acids following tryptophan loading.

Shore, Virgie G.; and Shore, Bernard (Lawrence Livermore Lab., Univ. of California, Livermore, Calif.): HETEROGENEITY OF HUMAN PLASMA VERY LOW DENSITY LIPOPROTEINS. SEPARATION OF SPECIES DIFFERING IN PROTEIN COMPONENTS. Biochemistry *12*:502-07, January 30, 1973.

The heterogeneity of the apoprotein component of human plasma very low density lipoproteins (VLDL) was demonstrated by fractionation on the basis of glycoprotein content by affinity chromatography on concanavalin A Sepharose. After purification, the protein moieties were characterized by disc electrophoresis, amino acid composition and immunodiffusion against selected lipoprotein antisera. The studies confirmed the presence of more than one kind of protein in most VLDL species, and considerable variation in relative content of individual proteins among VLDL from different patients. It is suggested that differences among VLDL species may reflect a dynamic or changing composition of the plasma VLDL related to differences in the homeostasis of lipid metabolism. R.P.E.

Søvik, Oddmund; and Oseid, Svein (Pediatric Res. Inst., Rikshospitalet, Univ. of Oslo, Oslo, Norway): STUDIES IN CONGENITAL GENERALIZED LIPODYSTROPHY. II. THE EFFECT OF PATIENTS' PLASMA ON GLYCOGEN SYNTHESIS IN RAT DIAPHRAGM AND ADIPOSE TISSUE IN VIVO. Acta Endocrinol. (Kbh) 72:495-505, March 1973.

Heparinized plasma was obtained from four patients with lipodystrophy during intravenous glucose tolerance tests. The insulinlike biologic activity present in these plasma samples was quantitated by their effects on the conversion to muscle and fat glycogen of labeled glucose injected in rats. In two of the cases, insulin activity was high in the fasting state and increased excessively in response to glucose. In one case, the biologic activity had decreased after puberty. Biologic and immunologic insulin activity did not always correlate. Although the biologic insulin activity on the muscle and adipose tissue was in parallel in most instances, the plasma from one patient stimulated glycogen deposition in the muscle but not in the fat tissue. S.P.

Spiro, Robert G. (Depts. of Biolog. Chem. and Med., Harvard Med. Sch., Boston, Mass.): BIOCHEMISTRY OF THE RENAL GLOMERULAR BASEMENT MEMBRANE AND ITS ALTERATIONS IN DIABETES MELLITUS. N. Engl. J. Med. *288*:1337-42, June 21, 1973.

The basement membrane of the renal glomerulus is a glycoprotein with two types of glycopeptide. One is a disaccharide (glucosylgalactose) attached to hydroxylysine and the other is a heteropolysaccharide attached to arginine. Solubilization and fraction of this membrane shows that it is made up of a number of subunits with variation in size, composition and cross-linkage. After formation of the membrane on the ribosomes it is modified by hydroxylation of lysine and proline, attachment of sugars and the establishment of cross-links. The glycosyltransferases which make the hydroxylysine-linked disaccharides are increased in diabetes mellitus. In keeping with this there is an increase in hydroxylysine and the disaccharide units in diabetes mellitus. The author feels that these abnormalities are the result of insulin deficiency and that careful therapy from the beginning of the glucose intolerance can prevent or minimize the development of these lesions. H.M.

West, Kelly M. (Dept. of Medicine, Univ. of Oklahoma Col. of Med., Oklahoma City, Oklahoma): DIET THERAPY OF DIABETES: AN ANALYSIS OF FAILURE. Ann. Intern. Med. *79*: 425-34, September 1973.

Verbatim summary. A review of the available evidence shows clearly the rarity with which diabetics understand and follow their diet prescriptions. The reasons for these shortcomings and their persistence are many and complex. They include the tendency of physicians to underestimate the formidability of developing, implementing, and adjusting a diet prescription that is both acceptable and effective over a long period of time. Another problem is the limited conceptual and technical knowledge of most physicians concerning dietary principles, strategies and tactics as they apply to the various types of diabetics. Recent research confirms the important potentials of diet regulation in mitigating diabetes and its complications. But apparently much of our effort in diet counseling is ineffective and wasteful. It seems desirable, therefore, to review in some detail the reasons for this failure and then to use candid appraisals for developing more effective approaches in the diet therapy of diabetes.

Young, V. R.; Vilaire, G.; Newberne, P. M.; and Wilson, R. B. (Dept. of Nutrition, and Food Service, Mass. Inst. of Tech., Cambridge, Mass.): PLASMA INSULIN AND AMINO ACID CONCENTRATIONS IN RATS GIVEN AN ADEQUATE OR LOW PROTEIN DIET. J. Nutr. *103*:720-29, May 1973.

Plasma insulin and free amino acid levels were measured in young rats given inadequate amounts of dietary protein. In the first experiment, rats were fed an inadequate or low-protein diet for two weeks. Some of the protein-depleted rats were then refed with the adequate diet for one week. After one, three and five weeks of protein deprivation and after refeeding, groups of rats from each diet treatment were fasted overnight and force-fed a test dose of one of the experimental diets. Plasma insulin, glucose and amino acid levels were measured after thirty and/or sixty minutes. Basal insulin levels rose after the oral load. After the three and five week periods, however, the increment was significantly less in protein-deprived rats than in well nourished controls. The response of plasma amino acid levels to force feeding suggested an impaired uptake of amino acids by muscle in rats deprived of protein for three or five weeks.

In a second set of experiments, plasma levels of insulin and glucose and free amino acids were determined throughout the day in similar groups. Under these conditions, rats fed the low-protein diet maintained a lower plasma insulin level throughout the feeding and fasting periods than did rats fed adequate protein. T.J.M.