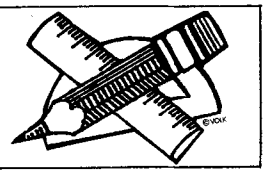
Abstracts



• Biochemistry and Nutrition

DISTRIBUTION AND CHARACTERIZATION OF THE SERUM LIPOPROTEIN AND THEIR APOPROTEINS IN THE RAINBOW TROUT (SALMO GAIRDNERII). M.J. Chapman, *et al., Biochemistry* 17, 4455–64 (1978). Two major lipoprotein classes, of β and α mobility, were detected in sera from adult rainbow trout upon immunoelectrophoresis. After taking into account the background density of trout serum (1.015 g/mL), these lipoproteins were fractionated by sequential preparative ultracentrifugation into the conventional density classes applied to the human substances, i.e., very low (d < 1.006 g/mL), low (d 1.006–1.063 g/mL), and high density (d 1.063–1.21 g/mL) lipoproteins (VLDL, LDL, and HDL, respectively). Immunological studies showed these fractions to be free of contaminating serum proteins.

VITAMIN D_3—INDUCED CALCIUM BINDING PROTEIN IN BONE TISSUE. S. Christakos and A.W. Norman, *Science* 202, 70–1 (1978). As detected by radioimmunoassay with antiserums against chick intestinal calcium binding protein (CaBP), administration of vitamin D_3 to rachitic chicks causes a 25- to 100-fold increase in immunoreactive CaBP in chick bone. The bone CaBP has a higher molecular weight (approximately 34,000 daltons) than intestinal CaBP (28,000 daltons); is concentrated principally in the spongiosa and cartilage plate regions of tibia, and responds adaptively to reflect the level of dietary calcium.

RELEASE OF TWO THIOESTERASE DOMAINS FROM FATTY ACID SYNTHETASE BY LIMITED DIGESTION WITH TRYPSIN. K.N. Dileepan, C.Y. Lin and S. Smith, *Biochem. J.* 175, 199–206 (1978). Limited digestion, with trypsin, of the fatty acid synthetase from rat mammary gland releases an enzymically active thioesterase component that, under denaturing conditions, consists of two major species of mol. wts. 35000 and 17500 and a minor species, mol. wt. 15000. The 17500- and 15000-mol. wt. species are shown to originate from the 35000-mol. wt. species as a result of nicking by trypsin. The nicked polypeptides are enzymically active. Since the isolated thioesterase is shown to bind only one di-isopropyl phosphate residue per 35000-mol. wt. polypeptide, we conclude that the fatty acid synthetase has two thioesterase domains, both of which are removed by limited trypsin treatment.

MOLECULAR WEIGHT AND SUBUNIT SIZE OF RABBIT MAMMARY-GLAND FATTY ACID SYNTHETASE. I. Grunnet and J. Knudsen, *Biochem. J.* 173, 929–33 (1978). The molecular weights of fatty acid synthetases isolated from lactating rabbit, rat, cow and goat mammary glands were estimated by sucrose gradient centrifugation and compared by chromatography on Sepharose 6B. The values obtained for all four enzymes were in the same range (0.4×10^6–0.55×10^6) as that found for other mammalian and avian fatty acid synthetases. The molecular weight found for the rabbit mammary enzyme therefore differs from published values of approx. 0.9×10^6. The molecular weights of the subunits of these four synthetases were 225,000–242,000. Again, the value for the rabbit mammary enzyme differs from published values.

LIPOPROTEIN METABOLISM IN BABOONS. EFFECT OF FEEDING CHOLESTEROL-RICH DIET. R.S. Kushwaha, *et al., Atherosclerosis* 31, 65–76 (1978). Cholesterol-fed male baboons were selected as a model of human hyperlipidemia. Four chaired baboons fed a diet rich in cholesterol for 6 months had a 100% increase in whole plasma cholesterol, 22% increase in phospholipids with a 44% decrease in triglyceride. Total proteins of very low (VLDL) and high (HDL) density lipoproteins declined by 40% and 15% respectively. Total proteins of intermediate (IDL) and low (LDL) density lipoproteins, however, increased considerably. The cholesterol/protein and cholesterol/triglyceride ratio increased in all lipoproteins.

ACTION OF LIPOPROTEIN LIPASE ON APOPROTEIN-DEPLETED CHYLOMICRONS. T.W. Lukens and J. Borensztajn, *Biochem. J.* 175, 53–61 (1978). Rat lymph chylomicrons were exposed to soluble and to immobilized trypsin. This treatment caused no detectable changes in the chylomicron structure or lipid composition, but did result in virtually total depletion of all their tetramethylurea-soluble apoproteins. It is suggested that with the use of trypsin-treated chylomicrons it is now possible for the first time to investigate the physiological role that individual apoproteins play in the catabolism of triacylglycerol-rich lipoproteins by lipoprotein lipase.

INFLUENCE OF A LIQUID DIET AND MEAL PATTERN ON BODY WEIGHT AND BODY FAT IN RATS. A. Ozelci, D.R. Romsos and G.A. Leveille, *J. Nutr.* 108(7), 1128–36 (1978). Rats weighing 110 to 150 g or 250 g initially were utilized in five experiments to determine the effect of the form of the diet (dry versus liquid) and the pattern of feeding (meal-feeding, force-feeding, nibbling, or ad libitum) on body weight gain and on body fat. A high-carbohydrate, 20% casein or 20% lactalbumin diet was fed for 4 to 8 weeks. Consumption of a diet mixed with an equal weight of water increased weight gain in one of three experiments. Body fat content of the rats was not influenced by addition of water to the diet. Neither force-feeding nor meal-feeding influenced body fat gain provided the respective control rats were pair-fed during the initial adaptation period. These results suggest that meal frequency may have a minimal influence on body fat accumulation, but that a shift to a higher level of food intake may cause an increased food efficiency and greater rate of fat deposition than in rats continuously fed the higher level of intake.

THE PHOSPHOLIPID-DEPENDENCE OF URIDINE DIPHOSPHATE GLUCURONYLTRANSFERASE. TEMPERATURE-DEPENDENCE OF MICROSOMAL ENZYME ACTIVITY AND THERMOTROPIC CHANGES IN MEMBRANE STRUCTURE. D.T. Pechey, A.B. Graham, and G.C. Wood, *Biochem. J.* 175, 115–24 (1978). Arrhenius plots of the nonlatent UDP-glucuronyltransferase (*p*-nitrophenol acceptor) activity of guinea-pig liver microsomal membranes prepared with 154 mM-KCl were linear from 5 to 40°C. Arrhenius plots for other microsomal preparations from guinea pig and rat liver that show various degrees of transferase latency, exhibited two linear regions intersecting at a sharp transition point near 20–25°C. This discontinuity was abolished or greatly decreased when transferase latency was removed by treating the membranes with perturbants of phospholipid bilayer structure. It is concluded that the thermotropic change in the structure of the membrane bilayer probably is a 'phase separation' or clustering of phospholipids, which affects a permeability barrier that restricts access of substrate to the transferase molecules.

FURTHER STUDIES ON SERUM LIPOPROTEINS IN CONNECTIVE TISSUE DISEASES. S. Rossner, *Atherosclerosis* 31, 93–9 (1978). Men with ankylosing spondylitis (AS) and females with systemic lupus erythematosus (SLE) were found to have low total serum lipid concentrations similar to results previously obtained in patients with rheumatoid arthritis (RA). In AS men total serum TG was about 50% of control values and in AS men and SLE women total serum cholesterol was 78% of control values but close to corresponding RA concentrations. Thus in spite of similar and low total serum lipid concentrations, differences in lipoprotein composition were found in the three different rheumatic diseases, underlining the importance of lipoprotein analyses in the study of dyslipoproteinaemia.

CHARACTERIZATION OF CHOLESTEROL ESTER HYDROLASE ACTIVITIES IN RABBIT AND GUINEA PIG AORTAS. D.L. Severson and T. Fletcher, *Atherosclerosis* 31, 21–32 (1978). Cholesterol ester hydrolase activity was determined in preparations of rabbit and guinea pig aorta utilizing micellar and glycerol-dispersed cholesterol oleate substrates. Both substrate preparations demonstrated an acid pH optimum of 4–5 for the soluble and particulate rabbit media cholesterol ester hydrolase, suggesting a lysosomal origin for this activity. Approximately one-fifth of the total recovered activity was particulate.

INTRAVENOUS FAT TOLERANCE IN OBESE AFRICANS WITH VARYING GRADES OF CARBOHYDRATE TOLERANCE. R. Shires, B.I. Joffe and H.C. Seftel, *Atherosclerosis* 31, 59–64 (1978). An intravenous fat tolerance test (IVFTT) was performed and fasting plasma lipid values determined in 12 healthy normal weight, 18 obese non-diabetic, 9 obese chemical diabetic and 10 obese symptomatic diabetic African subjects. Their insulin responses to an oral glucose load were also determined. Mean plasma triglyceride levels were similar in the normal weight and obese non-diabetic groups but were significantly raised in the two diabetic groups, being highest in the symptomatic diabetics. These results suggest that the rate of triglyceride clearance is an important determinant of the basal plasma triglyceride concentration in urban African subjects.

LECITHIN:CHOLESTEROL ACYL TRANSFER RATE AND HIGH DENSITY LIPOPROTEINS IN PLASMA DURING DIETARY AND CLOFIBRATE TREATMENT OF HYPERTRIGLYCERIDEMIC SUBJECTS. L. Wallentin, *Atherosclerosis* 31, 41–52 (1978). Effects of lipid-lowering treatment on the lecithin:cholesterol acyl transfer (LCAT) rate and the concentrations of lipids and high density lipoproteins (HDL) lipids in plasma were determined in hypertriglyceridemic subjects. Thirty-nine subjects were studied before and after two months on a weight reducing diet. Twenty subjects were studied also one month after the addition of clofibrate to the dietary regimen.

PROTEIN AND LIPID COMPONENTS OF THE PIGEON ERYTHROCYTE MEMBRANE. C. Watts and K.P. Wheeler, *Biochem. J.* 173, 899–907 (1978). The plasma membrane of the nucleated pigeon erythrocyte was isolated by a method that is simple, reproducible and minimally disruptive, the final preparation consisting of whole cell 'ghosts', recovered at over 40% yield. Alternative methods, which yield membrane fragments, were also tested and some of their possible disadvantages demonstrated. Analysis of the protein components of the isolated membranes by gel electrophoresis in the presence of sodium dodecyl sulphate revealed that their composition is very similar to that of the proteins of human erythrocyte membranes. These findings are discussed in the light of known physiological and biochemical differences between avian and mature mammalian erythrocytes.

LIPID COMPOSITION OF SERUM LIPOPROTEINS IN PATIENTS WITH PRIMARY TYPE IIB AND TYPE IV HYPERLIPOPROTEINEMIA. P. Weisweiler and P. Schwandt, *Atherosclerosis* 31, 53–8 (1978). Cholesterol, triglyceride and phospholipid concentrations of VLDL, LDL and HDL were studied in 20 patients with primary type IIb, 25 patients with primary type IV and in 18 controls. Both types are not only characterized by different concentrations of lipoprotein lipids, but also by their different lipid composition. The lipid relationships between the lipoproteins showed that the LDL/HDL lipid ratio of type IIb exceeded type IV ratio in spite of normal HDL lipid concentration in type IIb.

POLYUNSATURATED FATTY ACIDS IN THE BIOLOGICAL MEMBRANES. M. Pascaud, *Rev. Fr. Corps Gras* 25, 475–80 (1978). The phosphoglycerides of animal cell membranes are characterised by high contents in *cis* polyunsaturated fatty acids of linoleic (ω6) and linolenic families (ω3). The interactions between next carbon chains allow a membrane fluidity suitable for a versatile and permeable structure. Singer and Nicolson's structural model presented as fluid mosaics of phospholipids-globular proteins agrees with the dynamics of these molecules. The interactions between unsaturated phospholipids and functional proteins, carriers and enzyms determine the physiological activity of these proteins.

METABOLIC PATHWAYS AND BIOSYNTHESIS REGULATION OF PROSTAGLANDINS AND THROMBOXANES. G. Bereziat, *Rev. Fr. Corps Gras* 25, 463–73 (1978). The major step in the interconversion of polyunsaturated fatty acids is the Δ6 desaturase of fatty acids. Only the elongation of saturated acids is induced by acting on the step of multienzymatic complex condensation. New metabolic pathways of polyunsaturated acids leading to other prostaglandins:the thromboxanes and prostacyclin have been shown recently. The regulation in the formation of prostaglandins and relative compounds and the regulation in interconversion of polyunsaturated fatty acids are specially made by competition at level of substrates (free fatty acids or acyls CoA between peroxidases and enzyms of acylation-deacylation cycle (acyl CoA synthetase, acyl CoA, lysophospholipids or glycerophosphate acyl transferases, phospholipase A2).

EVIDENCE FOR LACK OF PHOSPHATIDIC ACID AND PHOSPHOLIPASE D ACTIVITY IN MILK. C.C.W. Chen, C.J. Argoudelis, and J. Tobias, *J. Dairy Sci.* 61, 1691–5 (1978). Phosphatidic acid could not be demonstrated when milk was assayed for phospholipase D activity even when lecithin was added. The concentration of "free" choline in milk remained the same before and after addition of lecithin. However, phosphatidic acid and an increased concentration of "free" choline were demonstrated when cabbage phospholipase D was added to raw milk. The concentration of phosphatidic acid and "free" choline in milk increased appreciably when both lecithin and cabbage phospholipase D were added to raw milk. These results refute a previous report which proposed that both phosphatidic acid and phospholipase D were in milk.

CARBON-13 AND PROTON NUCLEAR MAGNETIC RESONANCE STUDIES OF GANGLIOSIDES. P.L. Harris and E.R. Thornton, *J. Am. Chem. Soc.* 100, 6738–45 (1978). Systematic studies of the properties of purified gangliosides are described. These molecules were studied by ^{13}C NMR in THF-d_8-H_2O(5:1), DMSO-d_6 and D_2O buffer (in the potassium salt form in each case). G_{D1a} and mixtures of G_{D1a} with EYL (egg yolk lecithin) were also studied by ^1H NMR and Sepharose chromatography. Chemical shifts revealed a difference in the conformations of the two *N*-acetylneuraminic acid residues in G_{D1a}. Partially relaxed spectra of G_{D1a} in D_2O showed a motional gradient along the lipid chains, an effective rotational correlation time seven times greater for the sugar ring carbons than for the lipid methylene chain, and no evidence of a motional gradient among the sugar residues.

ENZYMATIC ASSAY FOR CHOLESTEROL ESTER HYDROLASE ACTIVITY. L.L. Gallo *et al.*, *J. Lipid Res.* 19, 913–6 (1978). A rapid and accurate method is described for the assay of cholesterol ester hydrolase (CEH) activity. The method is highly reproducible and the values correlate well with those obtained with the chromatographic radioassay of CEH activity.

ELECTRON-MICROSCOPIC EVIDENCE FOR PARTICLES SMALLER THAN 250 Å IN VERY LOW DENSITY LIPOPROTEINS OF HUMAN PLASMA. E. Groszek and S.M. Grundy, *Atherosclerosis* 31, 241–50 (1978). Particle size distributions of very low density lipoproteins (VLDL) in man were examined by electron microscopy. A comparison was made between normolipidemic and hyperlipidemic subjects. The results showed that the VLDL fraction frequently contained particles between 100–250 Å in diameter and in some cases particles less than 100 Å were observed.

MICROANALYSIS OF BRAIN LIPIDS: MULTIPLE TWO-DIMENSIONAL THIN-LAYER CHROMATOGRAPHY. S. Pollet *et al.*, *J. Lipid Res.* 19, 916–21 (1978). The techniques described allow the quantitation of cholesterol, cerebrosides, sulfatides, ethanolamine phospholipids, phosphatidylcholine, -serine, -inositol, and gangliosides on 500 μg of lipid. Lipid extraction required sonication. The procedure was applied to study regional differences in the central nervous system, to analyze cell membranes or subcellular particles, or to analyze pathological biopsies in the central and peripheral nervous systems.

THE PREPARATIVE ISOLATION OF LECITHIN. N.S. Radin, *J. Lipid Res.* 19, 922–4 (1978). Lecithin can be prepared on a relatively large scale, free of colored impurities, by a simple two-column procedure. Study of the column parameters has made it possible to use heavy loads with a relatively small column and minimal solvent.

THE BINDING ISOTHERMS FOR THE INTERACTION OF 5-DOXYL STEARIC ACID WITH BOVINE AND HUMAN ALBUMIN. S.J. Rehfeld, D.J. Eatough, and W.Z. Plachy, *J. Lipid Res.* 19, 841–9 (1978). Binding isotherms for the interaction of 5-doxyl stearic acid with bovine and human albumin are reported. The critical micelle concentration (CMC) and the limiting solubility of 5-doxyl stearic acid were determined using the electron spin resonance (ESR)-spin label method. The CMC and the limiting solubility of this spin-label stearic acid in saline-phosphate buffer are 3.5×10^{-5} M and 2×10^{-4} M, respectively. The binding data indicate that complexes are formed with bound spin-label stearate/albumin ratios of at least 18. The computed equilibrium constants for both bovine and human albumin indicate that the first seven spin-label molecules are tightly bound, $\log K > 5.0$. The species predicted to form in solution by these equilibrium constants are reported.

HYDROGENATION OF ORIENTED MONOLAYERS OF ω-UNSATURATED

FATTY ACIDS SUPPORTED ON PLATINUM. M.A. Richard, J. Deutch, and G.M. Whitesides, *J. Am. Chem. Soc.* 100, 6613–25 (1978). Oriented monolayers of an ω-unsaturated fatty acid (17-octadecenoic acid, C18:1[17]) have been prepared at the air-water interface and transferred to the surface of clean platinum foils. When the platinum-supported monolayer is exposed to dihydrogen, the olefinic group of the acid is hydrogenated. The rate of this reduction can be varied over a range of 10^4 by changing the pH and metal ion concentration of the aqueous subphase on which the monolayer is prepared and the transfer pressure. The study of the hydrogenation of supported, unsaturated monolayers provides an unexplored method for the examination of the microscopic structure of these films, and suggests new approaches to the study of mechanisms of heterogeneous hydrogenation.

PREPARATION OF (24,25-^{3}H)CHOLESTEROL. OXIDATION IN MAN AS A MEASURE OF BILE ACID FORMATION. R.S. Rosenfeld *et al.*, *J. Lipid Res.* 19, 850–5 (1978). In order to devise a convenient method for measuring the rate of formation of bile acids from cholesterol in man, (24,25-^{3}H)cholesterol was prepared by catalytic tritiation of desmosterol where the Δ^5-unsaturation was protected by conversion to the 3α,5α-cyclosterol-6-methyl ether. It was shown that tritium in the purified labeled sterol was located exclusively in the side chain.

LIPASE HYDROLYSIS OF MAMMALIAN LONG-CHAIN 1,2-ALKANEDIOL DIESTERS. NONRANDOM DISTRIBUTION OF FATTY ACIDS. P.C. Schmid (The Hormel Inst., Univ. of Minn., Austin, MN) *J. Lipid Res.* 19, 894–8 (1978). Long-chain 1,2-alkanediol diesters were isolated from the total surface lipids of golden Syrian hamsters and Swiss albino mice. Hydrolysis of the diol diester waxes with exocellular lipase from *Rhizopus arrhizus* delemar or with purified porcine pancreatic lipase produced free fatty acids and 2-acyl diols in about 60–80% yield. Nonrandom distribution of the constituent fatty acids at positions 1 and 2 of the alkanediols was observed. The results of the lipase hydrolysis were confirmed by degradation of the diester waxes with Grignard reagent.

GANGLIOSIDES OF HUMAN, CAT, AND RABBIT SPINAL CORDS AND CORD MYELIN. K. Ueno, S. Ando, and R.K. Yu, *J. Lipid Res.* 19, 863–71 (1978). Ganglisosides were isolated from whole spinal cords and corn myelin of human, cat, and rabbit by a revised methodology. The method included the sequential application of DEAE-Sephadex column chromatography, base treatment, Sephadex G-50 column chromatography, and finally Iatrobeads column chromatography. The human whole spinal cord was found to contain about one-tenth of the ganglioside concentration as in cerebral gray matter and about one-third of that in cerebral white matter.

COPPER DEFICIENCY AND CHOLESTEROL METABOLISM IN THE RAT. K.G.D. Allen and L.M. Klevay, *Atherosclerosis* 31, 259–71 (1978). The influence of copper deficiency on both ^{3}H incorporation into plasma and liver lipids following (^{3}H) mevalonate injection, and the excretion of biliary steroids from cannulated bile ducts was examined in the rat in two separate experiments. Copper-deficient rats exhibited a significant hypercholesterolemia (129% increase, $P < 0.001$) at 181 days. The observations suggest a more rapid synthesis and clearance of cholesterol to the plasma pool, with this cholesterol being unavailable for excretion as biliary steroids, in copper-deficient rats.

RE-EVALUATION OF LIPOGENESIS FROM DIETARY GLUCOSE CARBON IN LIVER AND CARCASS OF MICE. N. Baker, D.B. Learn, and K.R. Bruckdorfer, *J. Lipid Res.* 19, 879–93 (1978). We have estimated rates of fatty acid synthesis from glucose carbon and from all 2-carbon units in liver and carcass of mice using (U-^{14}C)glucose and ^3H_2O under four different nutritional states. The liver synthesized only a small fraction (2–9%) of the fatty acids that were formed from glucose carbon in mice that were fasted 24 hr, fasted-refed, or fed ad libitum. However, in fed-refed mice, the liver's role increased and now accounted for 40% of the fatty acids that were formed from glucose carbon. Possible implications for dietary control of carbohydrate-induced hyperlipemia and obesity are discussed.

METABOLISM OF ESTERIFIED CHOLESTEROL IN THE PLASMA VERY LOW DENSITY LIPOPROTEINS OF THE RABBIT. P.J. Barter and J.I. Lally, *Atherosclerosis* 31, 355–64 (1978). The *in vivo* metabolism of esterified cholesterol and triglyceride in plasma very low density lipoproteins (VLDL) has been studied in postabsorptive rabbits injected with endogenously ^{3}H-labelled preparations of VLDL. The rates at which the injected esterified (^{3}H)cholesterol and (^{3}H)triglyceride were removed from the recipient VLDL fraction were remarkably similar. It was found that, concurrent with a net mass transfer of esterified cholesterol from HDL to VLDL, there was a much more rapid transfer of esterified (^{3}H)cholesterol in the reverse direction, implying the existence of a process of molecular exchange of esterified cholesterol between the two fractions, analogous to that recently described between VLDL and LDL.

INFLUENCE OF SERUM HIGH DENSITY LIPOPROTEINS ON THE LOW DENSITY LIPOPROTEIN-AORTIC GLYCOSAMINOGLYCAN INTERACTIONS. M. Bihari-Varga, *Artery (Leonidas, Mich.)* 4, 504–11 (1978). The relationship between the low density lipoprotein (LDL) and the high density lipoprotein (HDL) *in vitro* level of human serum and its ability to form complexes with human aortic glycosaminoglycans (GAG's) was studied. There was a highly significant positive correlation between LDL concentration and the turbidity of the complex formed. The degree of complex formation decreased highly significantly with increasing HDL content. It is suggested that HDL might act in a similar way *in vivo* as well. This assumption gives a possible explanation for the mechanism of its antiatherosclerotic effect at the tissue level.

HYPOCHOLESTEROLEMIC EFFECT OF SUBSTITUTING SOYBEAN PROTEIN FOR ANIMAL PROTEIN IN THE DIET OF HEALTHY YOUNG WOMEN. K.K. Carroll *et al.*, *Am. J. Clin. Nutr.* 31, 1312–21

(1978). The effect of dietary protein on the level of plasma cholesterol in young, healthy, normolipidemic women was investigated in two separate studies by feeding either a conventional diet containing mixed protein, or a plant protein diet in which the animal protein of the first diet was replaced by soy protein meat analogues and soy milk. The diets were similar with respect to carbohydrate, fat and sterol composition.

SUBCELLULAR DISTRIBUTION OF ^{3}H-CHOLESTEROL IN THE ARTERIAL, HEART AND LIVER TISSUE OF SWINE IN VITRO. B.H.S. Cho, S. Taura and F.A. Kummerow (Burnsides Res. Lab., Univ. of Illinois, Urbana, IL) *Artery (Leonidas, Mich.)* 4, 528–35 (1978). Tissue slices from the arterial, heart and liver tissues of swine were incubated with ^{3}H-labeled cholesterol and subsequently fractionated into subcellular components. The distribution of ^{3}-H-radioactivity as expressed per mg of protein revealed that the maximal radioactivity occurred in the microsomal fraction followed by mitochondrial and high speed supernatant fractions. Among tissues, the cholesterol uptake was much greater in the arteries than in heart or liver. The presence of radioactivity was greatly diminished in the particulate fractions, while a marked increase in radioactivity was noted in the high speed supernatant fractions, particularly in heart and liver.

FATTY ACID COMPOSITION OF AORTIC LIPIDS IN MALE AND FEMALE RABBITS. J.C. Dousset, A.M. El Baba and G. Soula, *Atherosclerosis* 31, 273–7 (1978). Aortic tissue of adult New Zealand male and female white rabbits was studied. After thin-layer chromatography of cholesterol esters, triglycerides, free fatty acids, phosphatidylethanolamines and phosphatidylcholines, their fatty acid compositions are determined. Phosphatidylcholines and phosphatidylethanolamines contain important quantities of arachidonic acid. The level of linoleic acid in these phospholipids is higher in male animals than in female. Conversely the level of arachidonic acid is higher in females than in males.

THE EXTRACORPOREAL BILE DUCT: A NEW MODEL FOR DETERMINATION OF BILE FLOW AND BILE COMPOSITION IN THE INTACT RAT. E.E. Weis and C.A. Barth, *J. Lipid Res.* 19, 856–62 (1978). A new model is described which allows measurement of bile flow and sampling of bile in the intact rat with a physiologically functioning sphincter of Oddi. A number of metabolic parameters have been followed to show that animals with such an "extracorporeal bile duct" (EBD) behave as intact controls. Especially, there was no difference in the increase of body weight or hepatic fatty acid and cholesterol synthesis between EBD animals and intact controls.

SERUM CHOLESTEROL LEVELS IN THE POPULATION OF PUNJAB IN NORTH WEST INDIA. G.T. Werner and D.K. Sareen, *Am. J. Clin. Nutr.* 31, 1479–83 (1978). In an epidemiological survey the serum cholesterol levels of 3057 persons belonging to the middle or lower socioeconomic groups were checked. None of these persons suffered from any disease that might affect the lipid metabolism. No differences were found between the sexes. The average caloric intake per day of the population of Punjab is highest all over India (2500 cal). Most of the calories derive from wheat and cereals, only 20 to 25% from milk and milk products. This, and the fact, that most people have normal weight, might explain why the serum cholesterol levels in the population of Punjab do not differ much from findings in other, less developed states of India. ●

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