

European Journal of Clinical Investigation

40 Med. 67 93 (A)

JOURNAL COMMITTEE OF THE EUROPEAN SOCIETY FOR CLINICAL INVESTIGATION

W. CREUTZFELDT (CHAIRMAN), GÖTTINGEN

C. J. DICKINSON, LONDON · **C. T. DOLLERY**, LONDON

M. C. LEGRAIN, SURESNES · **A. STRUYVENBERG**, LEIDEN

EDITORS IN CHIEF

A.-F. MULLER, GENÈVE · **A. E. RENOLD**, GENÈVE

ASSOCIATE EDITORS

A. CRUCHAUD, **B. JEANRENAUD**, **W. STAUFFACHER**, **R. VEYRAT**

GENÈVE

ADVISORY BOARD

H. ADLERCREUTZ, HELSINKI · **E. AMUNDSEN**, OSLO · **R. A. ARDAILLOU**, PARIS · **C. C. BOOTH**, LONDON

H. BRAUNSTEINER, INNSBRUCK · **E. J. M. CAMPBELL**, HAMILTON · **L. A. F. CARLSON**, STOCKHOLM

L. DETTLI, BASEL · **L. A. DONATO**, PISA · **J. DUMONT**, BRUXELLES · **F. H. GROSS**, HEIDELBERG · **A. GUZ**

LONDON · **T. HEIM**, PÉCS · **J. F. HEREMANS**, BRUXELLES · **W. H. HITZIG**, ZÜRICH · **S. JARNUM**, KØBENHAVN

H. KERN, HEIDELBERG · **R. LUFT**, STOCKHOLM · **I. MCINTYRE**, LONDON · **E. F. PFEIFFER**, ULM · **L. S.**

PROD'HOM, LAUSANNE · **A. QUERIDO**, LEIDEN · **O. J. RAFAELSEN**, KØBENHAVN · **PH. J. RANDLE**,

BRISTOL · **J. J. VAN ROOD**, LEIDEN · **M. SCHERRER**, BERN · **M. G. SELIGMAN**, PARIS · **K. THURAU**,

MÜNCHEN · **I. A. WERKÖ**, GÖTEBORG · **R. WILLIAMS**, LONDON · **K. WINTERHALTER**, ZÜRICH · **H. P.**

WOLFF, MAINZ · **G. E. W. WOLSTENHOLME**, LONDON · **CH. VAN YPERSELE DE STRIHOU**, LOUVAIN

A. ZANCHETTI, MILANO

Volume 1, 1970/1971

SPRINGER-VERLAG, BERLIN · HEIDELBERG · NEW YORK

ON BEHALF OF THE EUROPEAN SOCIETY FOR CLINICAL INVESTIGATION

The copyright for all languages and countries, including the right to reproduce by photographic or other means, is transferred to the "European Society for Clinical Investigation" as soon as the manuscript is accepted and published by them.

The use of registered names, trade-marks etc. in this journal does not warrant the assumption that such names, as defined by the laws affecting protection of trade-marks etc., have been released for general use.

Springer-Verlag/Berlin · Heidelberg · New York

Printed in Germany by Universitätsdruckerei H. Stürtz AG, Würzburg

Copyright © by European Society for Clinical Investigation 1970/1971

9471/123

Contents

- Aakesson, I., Alvsaker, J. O.: The Urate-Binding Alpha₁₋₂ Globulin. Isolation and Characterization of the Protein from Human Plasma 281
- Balasse, E. O.: Inhibition of Free Fatty Acid Oxidation by Acetoacetate in Normal Dogs 155
- Björntorp, P., Karlsson, M.: Triglyceride Synthesis in Human Subcutaneous Adipose Tissue Cells of Different Size 112
- Björntorp, P., Berchtold, P., Holm, J., Larsson, B.: The Glucose Uptake of Human Adipose Tissue in Obesity 480
- Blendis, L. M., Ramboer, C., Williams, R.: Studies on the Haemodilution Anaemia of Splenomegaly. 54
- Bosia, A., Pescarmona, G. P., Arese, P.: Red Cell Glycolysis in the Myodystrophic Child 413
- Burr, I. M., Balant, L., Stauffacher, W., Renold, A. E.: Adrenergic Modification of Glucose-Induced Biphasic Insulin Release from Perfused Rat Pancreas 216
- Calandra, S., Martin, M. J., McIntyre, N.: Plasma Lecithin: Cholesterol Acyltransferase Activity in Liver Disease 352
- Carlson, L. A., Ekelund, L. G., Fröberg, S. O.: Concentration of Triglycerides, Phospholipids and Glycogen in Skeletal Muscle and of Free Fatty Acids and β -Hydroxybutyric Acid in Blood in Man in Response to Exercise 248
- Carulli, N., Manenti, F., Gallo, M., Salvioli, G. F.: Alcohol-Drugs Interaction in Man: Alcohol and Tolbutamide 421
- Creutzfeldt, W., Arnold, R., Creutzfeldt, C., Feurle, G., Ketterer, H.: Gastrin and G-Cells in the Antral Mucosa of Patients with Pernicious Anaemia, Acromegaly and Hyperparathyroidism and in a Zollinger-Ellison Tumour of the Pancreas 461
- Distler, A., Barth, Ch., Liebau, H., Vecsei, P., Wolff, H. P.: The Effect of Tyramine, Noradrenaline, and Angiotensin on the Blood Pressure in Hypertensive Patients with Aldosteronism and Low Plasma Renin 196
- Fern, E. B., Hider, R. C., London, D. R.: Studies in vitro on Free Amino Acid Pools and Protein Synthesis in Rat Jejunum 211
- Fleisch, H. A., Russell, R. G. G., Bisaz, S., Mühlbauer, R. C., Williams, D. A.: The Inhibitory Effect of Phosphonates on the Formation of Calcium Phosphate Crystals in vitro and on Aortic and Kidney Calcification in vivo. 12
- Franchimont, P.: A Study on the Cross-Reaction between Human Chorionic and Pituitary Luteinizing Hormones (HCG and HLH). 65
- Frerichs, H., Willms, B., Kasper, H., Creutzfeldt, C., Creutzfeldt, W.: Contribution to the Pathogenesis of Tumour Hypoglycaemia. 2
- Froesch, E. R., Oelz, O., Zapf, J., Waldvogel, M.: Lipase Activity in the Fat Cake and Aqueous Phase of Adipose Tissue Homogenate of Fed, Fasted and Fasted-Refed Rats 204
- Galton, D. J., Wilson, J. P. D.: The Effects of Starvation on Lipogenesis in Human Adipose Tissue 94
- Galton, D. J., Wilson, J. P. D., Kissebah, A. H.: The Effect of Adult Diabetes on Glucose Utilization and Esterification of Palmitate by Human Adipose Tissue 399
- Ganzoni, A. M.: Reticulocytes and Plasma Iron Turnover in Man 84
- Girard, J. P., de Kalbermatten, A.: Antibody Activity in Human Duodenal Fluid 188
- Golstein-Golaire, J., Delange, F.: Serum Thyrotropin Level during Growth in Man 405
- Grandchamp, A., Ayer, G., Truniger, B.: Pathogenesis of Redistribution of Intrarenal Blood Flow in Haemorrhagic Hypotension 271
- Heinrich, H. C., Gabbe, E. E., Kugler, G.: Comparative Absorption of Ferri-Haemoglobin-⁵⁹Fe/Ferro-Haemoglobin-⁵⁹Fe and ⁵⁹Fe³⁺/⁵⁹Fe²⁺ in Humans with Normal and Depleted Iron Stores 321
- Hotz, J., Widmaier, F., Minne, H., Ziegler, R.: Serum Calcium and Gastric Secretion in the Chronic Gastric Fistula Rat: Influences of Parathyroid Hormone and Calcitonin 486
- Jéquier, E., Perret, C.: Urinary Excretion of Catecholamines and their Main Metabolites after Myocardial Infarction; Relationship to the Clinical Syndrome 77
- Kekki, M., Nikkilä, E. A.: Plasma Triglyceride Metabolism in the Adult Nephrotic Syndrome 345
- Kohner, E. M., Dollery, C. T.: The Rate of Formation and Disappearance of Microaneurysms in Diabetic Retinopathy 167
- Kolanowski, J., Pizarro, M. A., de Gasparo, M., Desmecht, P., Harvengt, C., Crabbé, J.: Influence of Fasting on Adrenocortical and Pancreatic Islet Response to Glucose Loads in the Obese. 25
- Kurien, V. A., Yates, P. A., Oliver, M. F.: The Role of Free Fatty Acids in the Production of Ventricular Arrhythmias after Acute Coronary Artery Occlusion 225
- Lassen, N. A., Trap-Jensen, J.: The Validity of the Indicator Dilution Method for Measuring the Capillary Diffusion Capacity for ⁵¹Cr-EDTA in Hyperaemic Skeletal Muscle 118
- Lockhart, A., Nader, F., Tzareva, M., Schrijen, F.: Comparative Effects of Exercise and Isocapnic Voluntary Hyperventilation on Pulmonary Haemodynamics in Chronic Bronchitis and Emphysema. 69
- Meyer, D., Larrieu, M. J., Obert, B.: Factor VIII and IX Variants. Relationship between Haemophilia B_M and Haemophilia B₊ 425
- Macchia, V., Claar, G. M., Vecchio, G., Tenore, A.: Metabolic Activities of Thyroid Glands from Tapazole Treated Rats 99
- MacMahon, M. T., Thompson, G. R.: Comparison of the Absorption of a Polar Lipid, Oleic Acid, and a Non-Polar Lipid, α -Tocopherol from Mixed Micellar Solutions and Emulsions 161
- MacMahon, M. T., Neale, G., Thompson, G. R.: Lymphatic and Portal Venous Transport of α -Tocopherol and Cholesterol 288
- Malherbe, C., de Gasparo, M., Berthet, P., de Hertogh, R., Hoet, J. J.: The Pattern of Plasma Insulin Response to Glucose in Patients with a Previous Myocardial Infarction - The Respective Effects of Age and Disease 265
- Mancia, G., Baccelli, G., Adams, D. B., Zanchetti, A.: Heart Rate, Stroke Volume and Vasomotor Regulation in the Cat during Exertion and Postural Changes 172
- Miettinen, T. A.: Relationship between Faecal Bile Acids, Absorption of Fat and Vitamin B₁₂ and Serum Lipids in Patients with Ileal Resections 452
- Mockel, J., Dumont, J. E.: Influence of Energy-Coupling Inhibitors on the Respiration of Tightly-Coupled Human Skeletal Muscle Mitochondria. 32
- Mühlbauer, R. C., Russell, R. G. G., Williams, D. A., Fleisch, H.: The Effects of Diphosphonates, Polyphosphates, and Calcitonin on "Immobilisation Osteoporosis" in Rats 336

- Müller, J.: Steroidogenic Effect of Stimulators of Aldosterone Biosynthesis upon Separate Zones of the Rat Adrenal Cortex. Influence of Sodium and Potassium Deficiency 180
- Nagel, W., Kuschinsky, W.: Study of the Permeability of the Isolated Dog Mesentery 149
- Nilsson, Sv., Scherstén, I.: Influence of Bile Acids on the Synthesis of Biliary Phospholipids in Man 109
- Oelz, O., Jakob, A., Froesch, E. R.: Nonsuppressible Insulin-Like Activity (NSILA) of Human Serum. V. Hypoglycaemia and Preferential Metabolic Stimulation of Muscle by NSILA-S 48
- Ohlen, J., Pause, H., Richter, J.: Alkaline Phosphatase: Diagnostic Value of Isoenzyme Determination 445
- Opie, L. H., Mansford, K. R. L.: The Value of Lactate and Pyruvate Measurements in the Assessment of the Redox State of Free Nicotinamide-Adenine Dinucleotide in the Cytoplasm of Perfused Rat Heart 295
- Peterson, P. A.: Demonstration in Serum of two Physiological Forms of the Human Retinol Binding Protein 437
- Peterson, P. A., Berggård, I.: Urinary Immunoglobulin Components in Normal, Tubular, and Glomerular Proteinuria: Quantities and Characteristics of Free Light Chains, IgG, IgA, and Fc γ Fragment 255
- Preisig, E., Hitzig, W. H.: Nitroblue-Tetrazolium Test for the Detection of Chronic Granulomatous Disease - Technical Modification 409
- Rivera-Calimlim, L., Dujovne, C. A., Morgan, J. P., Lasagna, L., Bianchine, J. R.: Absorption and Metabolism of L-Dopa by the Human Stomach 313
- Rosset, E., Veyrat, R.: Inverse Variations of Plasma Renin Activity and Renin Substrate in Normal Man 328
- Scherstén, T., Nilsson, S., Cahlin, E., Filipson, M., Brodin-Persson, G.: Relationship between the Biliary Excretion of Bile Acids and the Excretion of Water, Lecithin, and Cholesterol in Man 242
- Schmidt, U., Dubach, U. C.: Sensitivity of Na K Adenosine Triphosphatase Activity in Various Structures of the Rat Nephron: Studies with Adrenalectomy 307
- Shafir, E., Biale, Y.: Effect of Experimental Hypertriglyceridaemia on Tissue and Serum Lipoprotein Lipase Activity 19
- Stern, S.: Haemodynamic Changes Following Separate and Combined Administration of Beta-Blocking Drugs and Quinidine 432
- Struyvenberg, A.: The European Society for Clinical Investigation: A Report of Progress 397
- Thompson, G. R., MacMahon, M., Claes, P.: Precipitation by Neomycin Compounds of Fatty Acid and Cholesterol from Mixed Micellar Solutions. 40
- Truniger, B., Rosen, S. M., Grandchamp, A., Strelbel, H., Kriek, H. R.: Redistribution of Renal Blood Flow in Haemorrhagic Hypotension. Role of Renal Nerves and Circulating Catecholamines 277
- Veleminsky, J., Burr, I. M., Stauffacher, W.: Comparative Study of Early Metabolic Events Resulting from the Administration of the Two Diabetogenic Agents Alloxan and Streptozotocin 104
- Wils, J. A., Kloppenborg, P. W. C.: Evaluation of the Triiodothyronine Suppression Test in the Treatment of Graves' Disease 90
- Abstracts of the Fourth Annual Meeting of the European Society for Clinical Investigation, Scheveningen, The Netherlands, April 23-25, 1970. 124
- Abstracts of the Fifth Annual Meeting of the European Society for Clinical Investigation, Scheveningen, The Netherlands, April 22-24, 1971 361

Human Liver Enzyme Pattern in Thyrotoxicosis and Hypothyroidism.

NOLTE, J., BACHMAIER, B., KIEFHABER, P., PETTE, D., *SCRIBA, P. C.¹. Fachbereich Biologie, Universität Konstanz and II. Medizinische Klinik, Universität München, Germany.

Enzyme activities of glycogenolysis, glycolysis, hexosemono-phosphate shunt, glycerol-P cycle, citric acid cycle, fatty acid oxidation and gluconeogenesis were measured in the supernatant and sediment fractions from human liver biopsy samples. The values are given as $\mu\text{M/h} \times \text{mg protein}$ or referred to triosephosphate dehydrogenase (E.C. 1.2.1.12) activity.

In thyrotoxicosis, as diagnosed on the basis of various clinical tests the activities of phosphoglucomutase (E.C. 2.7.5.1) and 3-hydroxy-acyl-CoA dehydrogenase (E.C. 1.1.1.35) were decreased compared with control subjects with no symptoms of thyroid dysfunction or of liver disease. In hypothyroidism mitochondrial α -glycerol-P dehydrogenase (E.C.1.1.99.5) was diminished. The high increase of rat liver α -glycerol-P dehydrogenase under the conditions of experimental thyrotoxicosis was not present in the liverbiopsies from thyrotoxic patients examined.

These results are discussed with respect to species differences and the mechanism of action of thyroid hormones.

¹ Supported by Deutsche Forschungsgemeinschaft SFB 51