

Carlson L. A. Determination of serum triglycerides.
J. Atheroscler. Res. 3: 334-6, 1963.

This paper summarizes 10 years' work in 3 pages. It describes the final version of my method for determination of serum triglycerides with major emphasis on practicality. Water-soluble interfering substances are removed; the method is specific for triglycerides, and it can easily be used for tissues. [The SC® indicates that this paper was cited 407 times in the period 1963-1977.]

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"My job is that of a physician in an academic department of internal medicine. I have no biochemical training but I am a somewhat unusual (read crazy) physician in being fascinated in and obsessed by biochemical methods. When the day's bedside and administrative work is done, I have spent and do spend the evenings and nights in the laboratory engaged with various aspects on methodology. I do not understand, but am deeply grateful for the patience of Kerstin, Bjorn, Mats, and Pia which made/makes my night work possible.

"This paper is number four and the last of my work on the method for determination of triglycerides in blood serum. The first was published in 1956 by myself and L. B. Wadstrom. My interest in blood lipids and lipoproteins was aroused as a medical student by the article in *Science*, 1950 by Gofman and co-workers on the role of lipids and lipoproteins in atherosclerosis. I was then given a lab bench by Nanna Svartz in the institute of which I am now head, and started my work on serum lipids. At that time triglycerides of serum

were unheard of in the clinic. Serum cholesterol was determined, but only used as an aid in the diagnosis of diseases such as nephrosis, myxedema, etc. I soon realized that there was urgent need in the lipid field for a method for determining triglycerides.

"The method has three essential steps. In principle these were available, but they had not been combined before. (1) Extraction of lipids by chloroform-methanol, (2) removal of phospholipids by silicic acid, and (3) determination of the triglyceride-glycerol by the chromotropic acid reaction. I believe that this paper became a 'Citation Classic' because we succeeded in greatly simplifying steps 1 and 2. We are still using these two steps daily. Particularly the extraction procedure for blood and tissues, with its practical simplicity, still charms visitors and ourselves.

"We had used the modified method since 1960 and I had not thought of publishing it until M. F. Oliver of Edinburgh, at the first meeting on the lipid-lowering compound clofibrate in 1963 stated that he—then editor of the *Journal of Atherosclerosis Research*—would immediately print any good paper on the difficult task of 'Determination of serum triglycerides.' He had this paper 10 days later, had it printed in 4 months—and still later—became one of my best international friends.

"In 1950 no direct serum triglyceride analysis could be done; in 1963 one technician could do 20-30 per day. Looking in my laboratory today where the analyzing machine feeds 100 completed analyses per hour into the computer, one can talk about progress. But why determine serum triglycerides? Simply because they are so closely related to atherosclerotic diseases."