

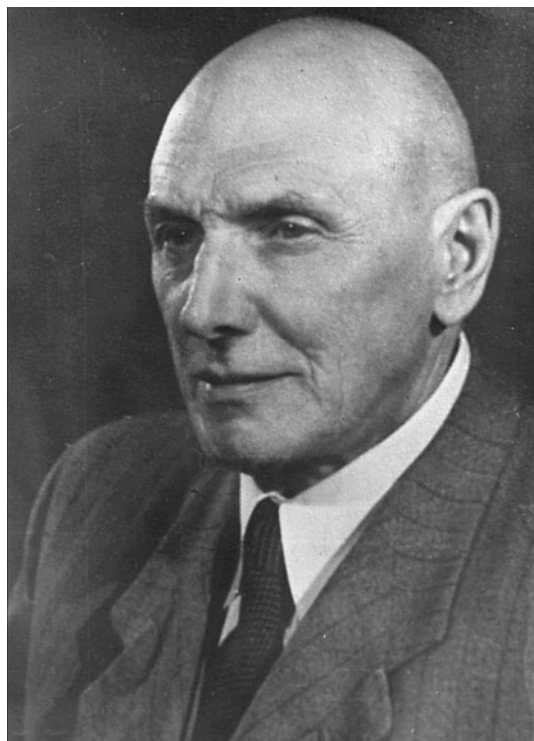
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PIONEERS IN NEUROLOGY

## Sergej Nikolajevich Davidenkov (1880–1961)

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Sergej Nikolajevich Davidenkov (1880–1961) is remembered in his own country as an outstanding clinician and founder of Russian clinical neurogenetics. In the West he is

best known for his many contributions on scapulooperoneal amyotrophy, also known as Davidenkov syndrome.

Davidenkov was born on 7 September 1880 in Riga (Latvia), where his father was a professor of mathematics. His mother, a trained concert pianist, introduced him to music and painting. Davidenkov became a skilled painter and his pupils were impressed by his talent for illustrating the characteristic posture of various neurological diseases with just a few lines. After secondary school in Smolensk, Davidenkov entered the famous Military Medical Academy in St. Petersburg and graduated in 1904 from Moscow University. In 1911, after several years as a clinical assistant in psychiatry, he presented a doctoral thesis on acute ataxia (Leyden–Westphal syndrome) [1]. Davidenkov was probably the first to provide a histopathological study on this disease. Given the absence of evidence of infection in the brain he suggested a systemic (postinfectious) origin. Subsequently, he described cases with recurrent episodes of acute ataxia and families in which several members were affected at different times (*‘familial vulnerability of coordination’*) [2].

In 1912 Davidenkov was appointed to the chair of the neurological clinic of Charkov University. In 1920 he was called to the University Hospital of Baku (Azerbaijan), where he started editing two neurological journals and essentially became the founder of neurology in Azerbaijan; for some years he acted also as vice-chancellor. From 1925 until 1931 he worked in Moscow, mainly at the Institute “V. A. Obuha” for occupational diseases. Finally, in 1932, Davidenkov was appointed successor of Leonid Blumenau at the “Medical Academy of Postgraduate Studies” in Leningrad, where he remained until his death in 1961. In 1945 he became full member of the Soviet Academy of Medical Sciences.

From 1933 to 1936 Davidenkov also directed the “Clinic of Neurosis” of the “All-Union Institute of

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Experimental Medicine” in Leningrad, where he worked with Ivan Pavlov (1849–1936), the institute’s founder. Davidenkov adopted Pavlov’s physiological teaching to explain various neurological symptoms and was instrumental in popularizing it among Russian neurologists [3]. He was a regular guest at the so-called Pavlovian Wednesdays, when scientists gathered in the physiologist’s flat to discuss neurological problems. Evgenia Fedorovna Kulkova (1902–1993) worked in the same institute, and became not only his (second) wife, but also his closest collaborator in the field of genetic studies, continuing Davidenkov’s work even after his death.

Throughout his career Davidenkov’s scientific work mainly focused on hereditary neurological diseases. He introduced the term “neurogenetics” and was one of the first to formulate a concept of the anticipation phenomenon. By means of careful genealogical inquiry and meticulous clinical examination he recognized the genetically heterogeneous nature of many phenotypically similar disorders. In 1925 he wrote “*Hereditary Disorders of the Nervous System*”, in which he advocated classification of disorders according to a systematic genetic catalogue rather than by phenotype. In this Davidenkov was well ahead of his time, anticipating McKusick’s “*Catalog of Human Genes and Genetic Disorders*”, which appeared in 1966, after his death. In Russia, he was also the first to systematically study disorders with polygenic inheritance (e.g. various forms of epilepsy, amyotrophic lateral sclerosis and narcolepsy) [4]. In the late 1920s in Moscow, and in 1934 in Leningrad, he founded the first institutes for genetic counseling. Further milestone textbooks were “*The Problems of Polymorphism in Hereditary Disorders of the Nervous System*” (1934) and “*The Problems of Evolution and Genetics in Neurology*” (1947). After 1948, however, genetic studies were officially declared ‘bourgeois pseudoscience’; Davidenkov’s scientific possibilities were almost entirely restricted to clinical research and some of his books were publicly defamed as ‘lying science’.

Many of these publications dealt with neuromuscular disorders, and especially with restricted forms. Between 1927 and 1939 he reported several patients with scapulo-peroneal distribution of muscular weakness and atrophy, for which he proposed the term “*Scapulo-peroneal Amyotrophy*” [5]. The disorder was commonly classified among muscular dystrophies, but in 1929 Davidenkov described patients with familial scapulo-peroneal amyotrophy associated with progressive distal sensory loss and impairment of sensory and motor conduction velocities. Subsequently, this nosological entity has been referred to as *Davidenkov’s syndrome* [6, 7].

During the siege of Leningrad in the Second World War (1941–1945), Davidenkov worked as a military doctor and wrote on wartime disorders (e.g. “*Neuritis from Exposure*

*to Cold*”, “*Disorders of Speech in Wartime and its Pathophysiology*”, both published in 1944). He also studied infectious diseases of the nervous system. In Russian spring-summer tick-borne encephalitis, he identified a specific subgroup with a biphasic febrile course and described bilateral loss of horizontal gaze saccades [8]. On the subject of encephalitis lethargica, he gave a detailed description of the clinical features from his experience of a severe epidemic in Azerbaidzhan, observed a specific clinical subtype (“*Myoclonic Variant*”), and in 1922 described two cases of encephalitis lethargica with marked alterations in the substantia nigra.

From 1952 to 1961 Davidenkov published four volumes of “*Clinical Lectures on Neurological Disorders*”, in which he encompassed nearly every aspect of neurology, focusing in particular on rare and poorly understood clinical problems. These works became very popular and are now a classic in Russia.

The totalitarian Soviet power overshadowed not only Davidenkov’s scientific work, but also his private life. His son Nikolaj (1915–1950), a biologist and author of a popular biography of Darwin, was arrested immediately after World War II and imprisoned in a forced-labour camp. In spite of all attempts of his father to obtain his release, Nikolaj was sentenced to death and executed in 1950. In “*Gulag Archipelago*” Alexander Solzhenitsyn has reported on the last years of Nikolaj’s camp-life (part III, chapter 18).

Davidenkov has always been held in highest esteem by his many patients as well as his pupils, and is remembered as a man of great modesty, profound humanity, remarkable erudition and capacity for hard work [9].

## References

1. Davidenkov SN (1911) On acute ataxia Leyden–Westphal. Diss. Charkov. (Russ.)
2. Davidenkov SN (1937) On the genetics of acute ataxia. (in: Collected works dedicated to the memory of M. I. Astvatzaturov), 35–41. Leningrad. (Russ.)
3. Davidenkov SN (1937) What gave Pavlov’s teaching to the clinical neurology. *Archiv Biol Nauk* 46(2):5–15
4. Davidenkov SN (1933) Genetics of amyotrophic lateral sclerosis. *Soviet Nevropat Psichiatr Psichogig* 2:44–50
5. Davidenkov SN (1939) Scapulo-peroneal amyotrophy. *Archiv Neurol Psychiatr* 41:694
6. Kaeser HE (1965) Scapulo-peroneal muscular atrophy. *Brain* 88:407–418
7. Schwartz MS, Swash M (1975) Scapulo-peroneal atrophy with sensory involvement: Davidenkov’s syndrome. *J Neurol Neurosurg Psychiatr* 38(11):1063–1067
8. Davidenkov SN (1945) Gaze bradykinesia in tick-borne encephalitis. *Nevropatolog Psichiatr* 14(2):51–52
9. Zhulev NM, Sajkova LA, Skoromets AA (2003) Sergej Nikolajevich Davidenkov. *Lech Nervn Bolezn* 1(9):41–43