

Meites J & Nicoll C S. Adenohypophysis: prolactin.

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This chapter reviewed papers on prolactin that were published between June 1961 and June 1965. The areas emphasized included the physiological actions of the hormone in relation to mammary growth, lactation, and tumorigenesis; its luteotropic effects; the emerging evidence that it has a role in the functions of male sex-accessory organs; and further proof of its inhibitory control by the hypothalamus. Other topics considered were the comparative aspects of prolactin physiology and newly developed assay methods for the hormone. [The SC⁷⁹ indicates that this article has been cited in over 335 publications.]

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Joseph Meites began work on prolactin as a graduate student at the University of Missouri in 1938; after Meites moved to Michigan State University, Charles S. Nicoll joined him in this work from 1958 to 1962. An invitation to prepare this review was received by Meites in the fall of 1964. Nicoll had just completed a postdoctoral stint at the University of California in Berkeley and had moved to the National Institutes of Health to become a staff fellow in the Laboratory of Biology of the National Cancer Institute. The months between September 1964 and June 1965 were used to gather and organize the relevant references. The two of us met in East Lansing, Michigan, in June 1965 and worked to complete the review expeditiously. Much of the work reviewed was from our own laboratory and was then new and exciting.

Our review was particularly timely for several reasons. It was preceded by an exhaustive review by O. Riddle¹ that emphasized prolactin's diverse roles in "vertebrate function and organization." His review generated interest in the hormone among a broad array of biologists in general and among endocrinologists in particular. There was also great interest in our reports that hypothalamic extracts contained a "prolactin release-inhibiting factor" (PIF) and that PIF activity in the hypothalamus could be altered by the suckling stimulus, neuroleptic drugs, estrogen, and other stimuli. Although we did not know it at that time, the PIF activity being measured was mainly that of dopamine, the predominant inhibitor of prolactin secretion. We also reported the first evidence for the existence of prolactin-releasing activity in the hypothalamus.

Clinical endocrinologists had not shown much interest in prolactin because there were no evident pathologies that could be associated with the hormone, and its existence as a separate hormonal entity in the primate pituitary was in doubt because human growth hormone had all of the bioactivities of prolactin. Evidence for the existence of prolactin as a distinct hormone of the primate pituitary began to accumulate only during the early part of the 1970s.² Clinically significant conditions associated with hyperprolactinemia, such as the amenorrhea-galactorrhea syndrome and impotence, were identified soon thereafter. These factors—the widespread appreciation of the fact that prolactin is a multifunctional hormone regulating diverse physiological processes, whose secretion is inhibited by the hypothalamus, and the emergence of evidence of its considerable clinical significance—sparked a striking increase in research on prolactin during the 1970s.^{3,4}

This heightened interest has been maintained. Our review was apparently used and cited by many new "prolactinologists" who relied on it to learn the background literature in the most recent information on the hormone.

[See reference 5 for recent information on this field.]

1. Riddle O. Prolactin in vertebrate function and organization. *J. Nat. Cancer Inst.* 31:1039-110. 1963. (Cited 95 times.)
2. Friesen H, Belarger C, Guyda H & Hwang P. The synthesis and secretion of placental lactogen and pituitary prolactin. (Wolstenholme G E W & Knight J, eds.) *Lactogenic hormones, a Ciba Foundation symposium in memory of J.S. Folley*. Edinburgh: Churchill Livingstone, 1972. p. 83-103.
3. Meites J, Nicoll C S & Talwalker P K. The central nervous system and the secretion and release of prolactin. (Nalbankov A V, ed.) *Advances in neuroendocrinology*. Urbana, IL: University of Illinois Press, 1963. p. 238-77. (Cited 160 times.)
4. Nicoll C S. Prolactin—introduction to a symposium. *Fed. Proc.* 39:2561-2, 1980.
5. Meites J & McNeilly A S. Prolactin. (Edwards R G, ed.) *Research in reproduction*. London: International Planned Parenthood Federation, 1983. (Wall chart.)