Interactions based on prolactin hormone.

Stephen Braren*

Department of Applied Psychology, New York University, New York, United States

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Description

Prolactin, also referred to as lactotropin, may be a protein best known for its role in enabling mammals (and birds), usually females, to supply milk. It is influential in over 300 separate processes in various vertebrates, including humans. Prolactin is secreted from the pituitary in response to eating, mating, estrogenic treatment, ovulation and nursing. It is secreted heavily in pulses in between these events. Prolactin plays an important role in metabolism, regulation of the system and pancreatic development [1,2].

In mammals, prolactin is associated with milk production; in fish it's thought to be related to the control of water and salt balance. Prolactin also acts during a cytokine-like manner and as a crucial regulator of the system. It has important cell cycle-related functions as a growth-, differentiating- and anti-apoptotic factor. As a growth factor, binding to cytokine-like receptors, it influences hematopoiesis and angiogenesis and is involved in the regulation of blood clotting through several pathways. The hormone acts in endocrine, autocrine, and paracrine manners through the prolactin receptor and various cytokine receptors, Pituitary prolactin secretion is regulated by endocrine neurons in the hypothalamus. The most important of those are the neurosecretory tuberoinfundibulum (TIDA) neurons of the accurate nucleus that secrete dopamine (a.k.a. Prolactin Inhibitory Hormone) to act on the D2 receptors of lactotrophs, causing inhibition of prolactin secretion. Thyrotropin-releasing factor (thyrotropin-releasing hormone) features a stimulatory effect on prolactin release, although prolactin is that the only adenohypophyseal hormone whose principal control is inhibitory. Several variants and forms are known per species. Many fish have variants prolactin A and prolactin B. Most vertebrates, including humans, also have the closely related somatolactin. In humans, three smaller and a number of other larger variants exist. One of the main regulators of the production of prolactin from the pituitary gland is the hormone called dopamine, which is produced by the hypothalamus, the part of the brain directly above the pituitary gland. Dopamine restrains prolactin production, therefore the more dopamine there's, the less prolactin is released. Prolactin itself enhances the secretion of dopamine, so this creates a negative feedback loop. Oestrogen is another key regulator of prolactin and has been shown to extend the assembly and secretion of prolactin from the pituitary. Studies have shown small increases in prolactin within the blood circulation of girls during stages of their reproductive cycle where oestrogen levels are at their highest. This is also the case during and after pregnancy, which makes sense, since a higher level of circulating prolactin is needed to cause lactation to start. In addition to dopamine and oestrogen, an entire range of other hormones can both increase and reduce the quantity of prolactin released within the body, with some examples being thyrotropin-releasing hormone, oxytocin and anti-diuretic hormone. For most people, prolactin does its job without a drag, and few are conscious of the impact it's on their health. Yet some people can struggle with prolactin levels, which may cause a spread of problems .Too much prolactin within the blood causes hyperprolactinemia, a condition which will cause menstrual disturbances, estrogen deficiency and testosterone deficiency. High prolactin levels can also cause unwanted lactation. This often occurs during pregnancy or when the thyroid isn't functioning properly. Pituitary tumors, referred to as prolactinomas and medications that reduce dopamine also can cause increased prolactin levels. High levels of prolactin are linked to sexual problems. Some of these conditions are often treated with medications that mimic the action of dopamine. It's also possible to possess insufficient prolactin, a condition referred to as hypoprolactinaemia. This is extremely rare, but it can occur if people have under-active pituitary glands. This is commonly noticed in women after pregnancy who are not able to produce sufficient milk. No other proven health effects of low prolactin levels are noted. Research is underway to work out if those with low prolactin levels suffer from a discount in system responses [3-5].

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*Correspondence to

Stephen Braren,
Department Applied
Psychology, New York
University,
New York, United states
E-mail: stephenbraren@nyu.edu

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