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EC MICROBIOLOGY
Short Communication

Endorphins in Human Wellbeing

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Received: December 28, 2022; **Published:** January 27, 2023

Abstract

Endorphins are endogenous opioids, neuropeptides, synthesized and stored in the pituitary gland in response to physical stress and pain. Betaendorphin is an abundant endorphin than dynorphins, enkephalins potent than morphine, receptors of endorphins are located on immune cells and nervous system.it has got analgesic, anti-inflammatory, immune stimulatory and stress buster activity can be useful in maintaining holistic health in prevention of diseases. This article briefs about the betaendorphins and its mechanisms of actions in maintaining holistic health.

Keywords: *Beta-endorphin; Substance p; Dopamine; Opsonin; Granzyme B; IFN-γ*

Abbreviations

PNS: Peripheral Nervous System; CNS: Central Nervous System; ACTH: Adrenocorticotropic Hormone; CRH: Corticotropin Releasing Hormone; TNF-α: Tumor Necrosis Factor-Alfa; IFN-γ: Interferon Gamma; GABA: Gama Amino Butyric Acid

Endorphins mechanisms of actions

Endorphins are endogenous opioids, neuropeptides, synthesized and stored in the pituitary gland in response to physical stress and pain. Out of three opioids betaendorphins, enkephalins, dynorphins, the abundant opioid is betaendorphin precursor of POMC (Pro-opiomelanocortin), a large protein cleaved in to betaendorphin, MSH and ACTH produced in the anterior pituitary gland in response to CRH (Corticotropin releasing hormone) in response to stress. Endorphin receptors are located on the immune cells and nervous system [1-6]. Betaendorphin binds with its μ receptors situated on the peripheral nervous system, results in inhibition substance, a neurotransmitter of pain and inflammation [7-10]. In the central nervous system, betaendorphins binds with its μ receptors on the central nervous system results in inhibition of GABA, a inhibitory neurotransmitter, produce dopamine, a excitatory neurotransmitter involved in analgesic activity, self-reward, addiction, euphoria, Increasing concentration, stress reduction and muscle relaxant [10-15].

Endorphin receptors are situated on most innate and adaptive immune cells. Betaendorphin binds with its μ receptors situated on the innate and adaptive immune cells such as neutrophils, macrophages, dendritic cells, Nk cells, T cells and B cells results in activation of immune cells inhibits inflammatory cytokines such as IL-1, IL-6, TNF-α and activates production of opsonin, granzyme-B, antibodies and IFN-γ involved in anti-inflammatory activity, analgesic activity, immune stimulatory activity, anti-tumor activity, and antiviral activity

[15-23].

Endorphins are produced during intense physical exercise creates a psychological relaxed state known as "Runner's High", acupuncture, sex, chocolate consumption, massage, music therapy, yoga, meditation, pranayama, chilli consumption, laughing therapy.

Endorphins can be used in maintaining proper holistic human health by its analgesic, anti-inflammatory, immune stimulatory, and stress buster activity to prevent diseases.

Conflict of Interest

None.

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Volume 19 Issue 2 February 2023