

Chapter 12

IMPORTANT PHYSIOLOGICAL FUNCTIONS OF MELATONIN HORMONE

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INTRODUCTION:

As a result of the activation of beta adrenergic receptors of the pineal gland, the hormone melatonin, synthesized from the tryptophan amino acid, plays an important role in regulation of many physiological functions. Its production and release begins with darkness and ends with light. Regulation of sleep rhythm and body temperature, renewal of cells, strengthening the immune system are among other important functions. Melatonin receptors are widely available throughout the body. Melatonin and agonists, which are used against sleep disorders and as antidepressants, are used in the treatment of various diseases today. Melatonin is the strongest antioxidant known for its lipophilic properties. Due to its lipophilic feature, it can reach all body areas and cross the blood-brain barrier. Although studies on melatonin have considerably increased in recent years, their functions are still not fully known. For this reason, compiling and presenting information about melatonin will be a resource for those who want to study on this subject.

PINEAL GLAND AND STRUCTURE

The pineal gland was described by Herophilus of Alexandria (325-280 BC) in the 300th year BC.¹ The word pineal also comes from the word *pinealis*, which means pine cone.² The pineal gland is on average 100-150 mg, 5-10 mm tall and 3-5 mm deep and 3-6 mm wide conical gland. While it is seen that its weight and size increase until adolescence, it decreases after adolescence.^{3,4} The pineal gland is a structure located in the depression between the two colliculus superior and midline (Figure 1). It is separated from the splenium part of the corpus callosum by the interlining choroidea of the third ventricle. The front part of the pineal gland extending forward is divided into two lamina, upper

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ical effects in the organism in the light of the scientific data obtained. It has been emphasized that mood disorders, especially with a disruption in circadian rhythm, are closely related to plasma melatonin levels. It has been proven in both experimental and clinical studies that sleep pattern and anti oxidant properties have protective effects on many systems.

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