

## Study and Melanocyte Adrenocorticotrophic Effects on Sugar Metabolism and Immune Response in Rabbits *Oryctolagus cuniculus*

**Authors :** A. Bouaouiche, M. S. Boulakoud

**Abstract :** The functioning of the pineal gland, the transducer body of environmental information to the neuroendocrine system is subject to a circadian rhythm. Melatonin is the main neuro-hormone expressing this operation. It is synthesized in the pinealocytes after conversion serotonin via N-acetyl-transferase enzyme, itself subject to a photoperiodic modulation (activation dark inhibition by light). Some authors have suggested that melatonin is involved in diabetic disease and found that it could have a diabetogenic effect. To this study the effect of this hormone on glucose metabolism has long been subject to controversy. Agreeing in effect and hyperinsulinemic hypoglycemic effect. In order to illustrate the level of interaction of melatonin with neuro-immune- corticotropin axis and its impact on carbohydrate metabolism, we studied the impact homeostatic (glucose) through the solicitation of two control systems (gland pineal and corticotropin axis). We then found that melatonin could have an indirect influence on insulin control (glucose metabolism) to the levels of the growth hormone axis (somatostatin) and adrenocorticotrophic (corticotropin). In addition, we have suggested that melatonin might limit the hyperglycemic action of corticosteroids by direct action at peripheral level.

**Keywords :** pinéal gland, melatonin, neuro-immuno-corticotrop, metabolism