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Melatonin increases reactive aggression in humans

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Abstract

Objective Melatonin is a neurohormone that is secreted by the pineal gland and is involved in the regulation of circadian rhythms and sleep. It has been suggested that melatonin may also be involved in the regulation of aggression. The present study investigated the effects of melatonin on reactive aggression in humans. Participants were randomly assigned to receive either a placebo or a 5 mg dose of melatonin. They then completed a task that required them to respond to provocations with either a mild or a severe response. Results showed that participants who received melatonin showed significantly higher levels of reactive aggression compared to those who received the placebo. These effects were mediated by changes in the activity of the amygdala, a brain region that is known to be involved in the processing of emotional information. The findings suggest that melatonin may play a role in the regulation of aggression in humans.

Methods

The study involved 63 participants (31 males and 32 females) who were randomly assigned to either a placebo or a 5 mg dose of melatonin. They then completed a task that required them to respond to provocations with either a mild or a severe response. The task was designed to measure reactive aggression, which is a form of aggression that is triggered by a provocation. The amygdala activity was measured using functional magnetic resonance imaging (fMRI) during the task. The results showed that participants who received melatonin showed significantly higher levels of reactive aggression compared to those who received the placebo. These effects were mediated by changes in the activity of the amygdala.

Results

The results showed that participants who received melatonin showed significantly higher levels of reactive aggression compared to those who received the placebo. These effects were mediated by changes in the activity of the amygdala. The findings suggest that melatonin may play a role in the regulation of aggression in humans.

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 (17/K 2003).
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 2012).
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 2001),
 2002/ 2004),
 2013).
 2000).
 (1) /
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 2002/ 2004),
 (17)
 (175).
 2001).
 2014),
 (N=400)
 (2014).

A (167/K
 2007) (167/K
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Methods and materials

Participants

A 64 (32 (21.3 ± 1.1) ; 32 (21.2 ± 1.1))
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 24
 1
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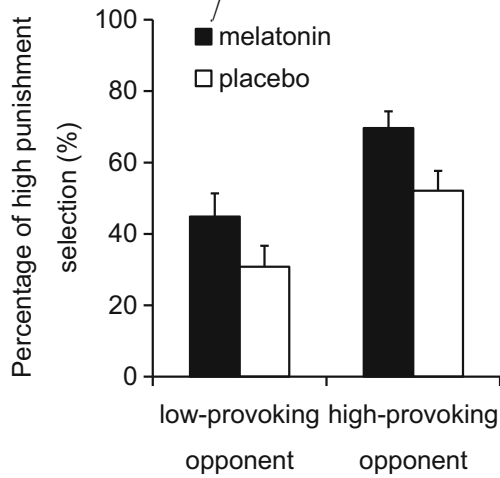


Fig. 3

... $p = 0.55$...
 $F(2,60) = 46.44, p = 0.001, \eta^2 = 0.60$...
 $F(2,60) = 13.370, p = 0.001, \eta^2 = 0.30$...
 $p = 0.001$...
 $(p = 0.237, 0.0)$...
 $(p = 0.72, 0.355,$...

Table 1

	()	()	()	()
	14 (17.7)	54 (11.6)	0 (12.5)	57 (14.4)
	755 (15.7)	17 (1.1)	76 (13.7)	12 (1.4)
(%)	4.3 (5.1)	1.6 (6.0)	3.7 (4.1)	5.3 (3.4)
	4.6 (4.4)	11.6 ()	4. (5.4)	7.0 (4.3)

20,000
 (200)
 $-0.0034, 0.000, 5\%$
 $-0.0507, 0.0104$

Sleepiness

2 ()
 $(F(1,60) = 3.31, p = 0.052, \eta^2 = 0.061)$
 $(F(1,60) = 40.624, p = 0.001, \eta^2 = 0.404)$
 $F(1,60) = 4.3, p = 0.040, \eta^2 = 0.06$
 $(3.3 - 1.23)$
 $(3.0 - 1.12), t(60) = 2.476, p = 0.016,$
 $(2.5 - 0.)$
 $t(61) = 0.65, p = 0.513.$
 $r = -0.15, p = 0.12$
 20,000
 $0.0027, 0.0203, 5\%$
 $-0.034, 0.044$

Controlling for potential contributing factors

(1, 2),
 $(1, 2),$
 $p = 0.03$ (3).

Discussion

... (... 2000/ ... 2002/ ... 2004/ ... 2012), ... (... 2001/ ... 2014).

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(“ ” ...) ... (“ ” ...) ... (... 200) ...

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... A ... (... 2005).

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Compliance with ethical standards

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Conflict of interests

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