Full Spectrum Classroom Light and Sickness in Pupils

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SIR, - The number of days children at the Green Street Elementary School, Brattleboro, Vermont, were off sick fell significantly after distorted spectrum fluorescent (DSF) was replaced by full-spectrum fluorescent (FSF) light.

As an experiment the DSF light in three classrooms at this school, where pupils are 5-9 years old, was replaced by FSF light during the holiday in December, 1986. The three classrooms were chosen by the school's principal (with the consent of the teachers) primarily because the rooms were on different sides of the building. At the end of the school year I tabulated from the attendance records of the school the total number of daily absences due to sickness (as opposed to family holidays and other reasons unrelated to illness) during September, October, November, and December, 1986 (70 days of school), and from January to the end of June, 1987 (105 days), when the FSF light was in place. The table shows the sickness rates for the three classrooms that had FSF light, for all other classrooms in the school, and for three classrooms without FSF light paired, for grade, with the three experimental classrooms.

Sick Days in Green Street Elementary School, 1986-87

	No. of sick days (and average per pupil per 100 days)		
Rooms (no. of pupils)	September-December	January-June	p*
FSF light (61)	98 (2.30)	140 (2.19)	NS
Rest of school (192)	313 (2.33)	578 (2.87)	<0.01
Three paired rooms (60)	108 (2.57)	209 (3.32)	<0.05
p*, †	NS (NS)	<0.01 (0.001)	

*Statistical compartments between the number of sick days are by $\Pi 2$ test with one degree of freedom.

†For FSF light *vs* rest of school (and *vs* three paired norms).

In the term before the FSF light was introduced the sickness rate in the FSF designated classrooms was not significantly different from that in the rest of the school or in three paired classrooms. Thus there was no evidence that students in the experimental rooms started off any healthier than the other children. When the FSF light was in place, the sickness rate in the experimental classrooms was lower than that in the rest of the school and in the three paired classrooms (table). The effect was to reverse the usual seasonal pattern in the school wherein sickness absences increase during the winter and spring months. In classrooms without FSF light the rate of sick days increased significantly from September-December to January-June period but in the FSF light classrooms the sickness rate fell slightly.

This study was not blind but neither the pupils nor the staff expected that FSF light might affect sickness absence, and nor did I. DSF light raises the serum cortisol level[1] more than FSF light does,[2] and glucocorticoids suppress cell-mediated immunity.[3] Perhaps FSF light, which is used to treat the seasonal affective disorder,[4] may also be useful in the treatment of immune disorders.

The teachers found the FSF lights brighter, more natural, and more pleasant, and they tended to keep it on longer and did not wish to return to the DSF light.

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