

# A multidimensional non-drug intervention reduced daytime sleep in nursing home residents with sleep problems

Alessi CA, Martin JL, Webber AP, *et al.* Randomized, controlled trial of a nonpharmacological intervention to improve abnormal sleep/wake patterns in nursing home residents. *J Am Geriatr Soc* 2005;53:803–10.



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Clinical impact ratings GP/FP/Primary care ★★★★★☆ Geriatrics ★★★★★☆

**Q** In nursing home residents with sleep problems, does a multidimensional, non-drug intervention improve sleep patterns?

## METHODS

-  **Design:** randomised controlled trial.
-  **Allocation:** {unconcealed\*}†.
-  **Blinding:** unblinded.\*
-  **Follow up period:** 32 days for the intervention group and 16 days for the control group.
-  **Setting:** 4 community nursing homes in Los Angeles, California, USA.
-  **Participants:** 118 residents (mean age 87 y, 77% women) with daytime sleepiness and night time wakefulness. Exclusion criteria: acute illness, isolation, or being bed-bound.
-  **Intervention:** intervention (n=62) or usual care (n=56). The intervention was given over 5 consecutive days and nights. From 8 am to 8 pm, the intervention group was encouraged to remain out of bed, received ≥30 minutes of sunlight exposure (≥10 000 lux), and participated 3 times daily in a low level physical activity programme. From 8 pm to 10 pm, residents were given a bedtime routine that included personal care, lights out, and reduced sources of noise. From 10 pm to 6 am, efforts continued to reduce noise and light in the hallway area and rooms. Personal care was provided and timed to coincide with when residents were awake. A more detailed description of the intervention is provided on the website ([www.evidence-basedmedicine.com](http://www.evidence-basedmedicine.com)).
-  **Outcomes:** night time sleep, night time awakenings, and daytime sleep. Secondary outcomes included participation in physical and social activities.
-  **Patient follow up:** 92% (intention to treat analysis).

\*See glossary.  
†Information provided by author.

## MAIN RESULTS

The intervention reduced daytime sleep and the length of night time awakenings and increased participation in social and physical activities relative to usual care. Groups did not differ for night time sleep (table).

## CONCLUSION

In nursing home residents with sleep problems, a multidimensional, non-pharmacological intervention reduced daytime sleep and the

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length of night time awakenings and increased participation in social and physical activities.

## Commentary

The meticulously designed and conducted study by Alessi *et al* shows that a fairly labour intensive, non-pharmacological intervention is successful in decreasing daytime in bed and daytime sleeping and in increasing light exposure, participation in nursing home activities, physical activity, and social conversation, but did not affect total night time sleep or number of awakenings. Only the duration of night time awakenings was modestly reduced.

Alessi *et al* comment on the positive implications the intervention might have had on patients' quality of life. Perhaps it would be more appropriate to speak of "quality time," as quality of life should have been defined by the study participants themselves. However, few would argue about the medical and psychosocial benefits of increased time out of bed, physical activity, and social interactions, even though the cost benefit ratio is difficult to measure. And not all the interventions studied are costly, especially those suggested for night time implementation. Minimising exposure to noise and light and provision of personal care at time of spontaneous patient awakening should be achievable with limited staff education. Individual activity costs, as suggested in the study, could be lessened by inclusion of a larger number of patients in the programmes.

The major weakness of this study is that it fails to recognise the multiple causes of insomnia.<sup>1</sup> Even though sleep disorders are associated with advancing age and dementia, psychiatric, neurological, and medical conditions are common in this population, and interventions to manage these conditions could have had a greater effect in decreasing the sleep disruption experienced by these patients.

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1 Diagnostic and statistical manual of mental disorders. 4<sup>th</sup> ed. Washington, DC: American Psychiatric Association, 1994.

## Intervention v usual care in nursing home residents with sleep problems

Outcomes at 32 days	Mean change from baseline		Difference in mean change from baseline (p value)
	Intervention	Usual care	
Daytime sleep*	-11%	-2%	9% (p<0.001)
Night time mean awakening length (min)	-0.8	4	4.8 (p=0.042)
Night time total sleep (h)	0	-0.3	0.3 (p=0.35)
Percentage of night time sleep	0	-4%	4 (p=0.25)
Night time number of awakenings	2.7	-0.9	3.6 (p=0.34)
Participation in social activities*	1.9%	0.1%	1.8% (p<0.001)
Participation in social conversation*	0.7%	-0.4%	1.1% (p=0.03)
Physical activity*	8.7%	1.8%	6.9% (p=0.001)

\*Percentage of daily observations.

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### **Further details about the multidimensional, non-drug intervention given to nursing home residents with sleep problems**

<b>TIME PERIOD</b>	<b>INTERVENTION</b>
8 am to 8 pm	<ul style="list-style-type: none"><li>• Residents encouraged to remain out of bed</li><li>• Residents received ≥30 minutes of sunlight exposure (≥10 000 lux) in a comfortable outdoor location, usually in the morning</li><li>• Residents participated in a low level physical activity programme (Functional Incidence Training), which increases physical strength and endurance in frail nursing home residents</li></ul>
8 pm to 10 pm	<ul style="list-style-type: none"><li>• Residents had a bedtime routine that included personal care, lights out, and reduced source of noise</li></ul>
10 pm to 6 am	<ul style="list-style-type: none"><li>• Efforts were made to minimize noise in the hallways and residents' rooms</li><li>• Residents received usual night time nursing personal care (toileting or diaper changing, and turning), which</li></ul>

	<p>was timed to coincide with awake periods.</p> <ul style="list-style-type: none"><li>• Intervention staff made hourly rounds to see whether residents were asleep or awake, and if awake, to check whether they needed nursing care</li><li>• If participants were asleep on 3 consecutive rounds, they were awakened to receive care on the 4<sup>th</sup> round.</li></ul>
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