

SLEEP BETTER IN, UNDER AND ON WOOL



Good sleep is important; the impacts of poor sleep can manifest as a range of negative physical, neurological and psychological effects on one's health. These include compromised cognition, a weakened immune system, increased risk of depression and poor physical health.

One way to improve sleep quality is through a combination of sleepwear and bedding that promotes a stable micro-climate in bed. Wool's natural and inherent attributes help to create such an environment.



Research proves that wool helps maintain a more stable body temperature and combat sweating, thereby making a more comfortable sleep environment. In particular, wool has been shown to provide superior buffering of heat and moisture changes compared to other fibre types. This enables wool to protect against low or high temperatures and high humidity that have been shown to detrimentally affect sleep.

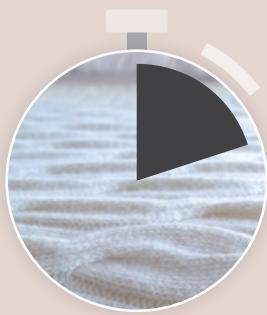
The positive effects of sleeping with wool apply to people of all ages. However, because a person's sleep quality and the ability to regulate body temperature generally decrease with age, wearing wool sleepwear and using wool bedding can particularly improve the quality of sleep of adults as they grow older.

WOOL SLEEPWEAR

A 2018 study showed older adults wearing woollen sleepwear fall asleep faster and have less disturbed sleep compared to those wearing other fibre types. This study demonstrated that adults aged 65 or over, experienced significantly faster sleep onset, falling asleep in 12 minutes on average, compared to 22 minutes when wearing polyester and 27 minutes when wearing cotton.

Although the beneficial effects of wool sleepwear on sleep quality are observed most prevalently for older adults, studies have shown these benefits also apply to younger adults.

Adults aged 65 or over, experienced significantly faster sleep onset, falling asleep on average:



12 minutes
Wool



22 minutes
Polyester



27 minutes
Cotton

A 2016 study assessing the effects of wool and cotton sleepwear on sleep quality at 17°C showed that **men & women aged 19-27 had significantly shortened sleep onset when wearing wool** compared to cotton.

WOOL BEDDING

The comparative thermo-physiological advantages of wool blankets compared to cotton/acrylic blend blankets were shown by Umbach using laboratory measurements and human sleep studies. The author concluded that wool blankets deliver better thermal insulation, moisture transport, and moisture buffering than the cotton/acrylic blanket.

Another investigation found that wool underlays increased REM (Rapid Eye Movement) sleep periods and that wool bedding (duvets with or without underlays) increased REM sleep by 25% and allowed greater natural skin cooling associated with Stage 4 sleep. The subjects of this study also rated the wool bedding products as more comfortable.



Wool blankets demonstrated **better thermal insulation, moisture transport, and moisture buffering** than the cotton/acrylic blanket.

Adults sleeping on wool underlays have been shown to sleep more peacefully and wake feeling more refreshed (“feeling better”). Compared to other fibre types, wool underlays provide greater diffusion of pressure points, better insulation and better perspiration absorption making it more comfortable.

- Sufferers of fibromyalgia (diffuse chronic pain and presence of tender points) showed **significant lessening of pain scores**, and **significantly improved assessments of sleep quality** (Pittsburgh Sleep Quality Index) when sleeping on wool underlays.
- Affected patients **needed to be turned or rolled less often on the sheepskin underlay** and **developed fewer pressure ulcers** due to reduced moisture build-up from wool’s natural moisture transport and breathability.

This very solid and contemporary body of scientific evidence, which continues to grow, shows that wool is beneficial to a good night’s sleep for both older and younger adults. In particular, wool promotes a better sleep for poor sleepers. These research findings should give confidence to consumers to choose sleepwear and bedding made from wool in preference to products made from other fibres.

SLEEP BETTER IN, UNDER AND ON WOOL

REFERENCES

The impacts of poor sleep can manifest as compromised cognition, a weakened immune system, increased risk of depression and poor physical health

- Sleep, recovery, and metaregulation: explaining the benefits of sleep. Vyazovskiy W. *Nat Sci Sleep*. 2015;7:171–184
- Stone, K. L., & Xiao, Q. (2018). Impact of Poor Sleep on Physical and Mental Health in Older Women. *Sleep medicine clinics*, 13(3), 457–465. <https://doi.org/10.1016/j.jsmc.2018.04.012>
- Chien, M. Y., & Chen, H. C. (2015). Poor sleep quality is independently associated with physical disability in older adults. *Journal of clinical sleep medicine : JCSM : official publication of the American Academy of Sleep Medicine*, 11(3), 225–232. <https://doi.org/10.5664/jcsm.4532>

Wool has been shown to provide superior buffering of heat and moisture changes compared to other fibre types. This enables wool to protect against low or high temperatures and high humidity that have been shown to detrimentally affect sleep.

- David, H. G. (1964) The Buffering Action of Hygroscopic Clothing. *Tex. Res. J*, 34, 814 – 816.
- Okamoto-Mizuno, K. & Mizuno, K. (2012) *Journal of Physiological Anthropology*, 31.
- Okamoto, K., Mizuno, K., Michie, S., Maeda, A. & Iizuka, S. (1999) *Sleep*, 22, 767-773

Older adults wearing woollen sleepwear fall asleep faster and have less disturbed sleep compared to those wearing other fibre types. Chow, Shin, Mahar, Halaki, Ireland (2018) The impact of sleepwear fibre type on sleep quality in older adults under warm ambient conditions. p2-18.

At 17°C men & women aged 19-27 had significantly shortened sleep onset when wearing wool compared to compared cotton. Shin, Halaki, Swan, Ireland, Chow (2016) The effects of fabric for sleepwear and bedding on sleep at ambient temperatures of 17°C and 22°C.

Umbach using laboratory measurements and human sleep studies demonstrated that wool blankets achieve better thermal insulation, moisture transport, and moisture buffering than the cotton/acrylic blanket. Umbach, K.H. (1986), *Journal of the Textile Institute*, 77:3, 212-222.

Wool underlays increase REM (Rapid Eye Movement) sleep periods. Wool bedding (duvets with or without underlays) increased REM sleep by 25% and allowed greater natural skin cooling associated with Stage 4 sleep. Wool was also rated more comfortable. IWS Interior Textiles Technical Information Letter 46, 21st November 1990

Adults sleeping on wool underlays have been shown to sleep more peacefully and wake feeling more refreshed (“feeling better”). Dickson, P.R. (1984), *The Medical Journal of Australia*, January 21, 1984, p87-89.

Sufferers of fibromyalgia (diffuse chronic pain and presence of tender points) showed significant lessening of pain scores, and significantly improved assessments of sleep quality (Pittsburgh Sleep Quality Index) when sleeping on wool underlays. Kiyak, E., Akdemir, N., Fesci, H. (2010), *Australian Journal of Advanced Nursing*, 26:3, 47-52.

Affected patients needed to be turned or rolled less often on the sheepskin underlay and developed fewer pressure ulcers. Jolly, D.J., Wright, R., McGowan, S., Hickey, M.B., Campbell, D.A., Sinclair, R.D., and Montgomery, K.C. (2004), *Medical Journal of Australia*, 180, 324-327.