

additional tissue-specific functions that go far beyond CJ formation. Altogether, MICOS has entered the center stage of mitochondrial research and is emerging as a critical hub in the regulatory network that controls mitochondrial functions and their adaptation to metabolic changes, cellular stress and developmental programs.

#### Where can I find out more?

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#### DECLARATION OF INTERESTS

The authors declare no competing interests.

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# Lateralized sleeping positions in domestic cats

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Both vertebrates and invertebrates show a multitude of left–right asymmetries of brains and behaviors<sup>1</sup>. For example, cats, dogs, and many other species have a preferred paw when handling food<sup>2</sup>. But why should humans and other animals have lateralized brains? Based on a large comparative approach<sup>1</sup>, it is likely that asymmetries serve several purposes. First, by specializing on one limb or one side of its sensory system, the contralateral hemisphere goes through life-long cycles of motor and perceptual learning, thereby increasing the speed of processing and motor efficacy, decreasing reaction time, and enhancing discrimination ability. Second, by having two complementary, specialized hemispheres, neural processes are computed in parallel, thereby reducing cognitive redundancy<sup>1</sup>. For example, the right hemisphere excels in processing threat-related stimuli, providing the left visual field an advantage in reacting to a predator approaching from the left<sup>3</sup>. Here, we report that two-thirds of cats prefer a leftward sleeping position, giving their left visual field and thus their right brain half a privileged view of approaching animals without being obstructed by their own body.

Sleep is one of the most vulnerable states for an animal, as anti-predator vigilance is drastically reduced, especially in deep sleeping phases. Domestic cats (*Felis silvestris catus*) are both predators and prey (e.g., for coyotes)<sup>4</sup> and sleep an average of 12–16 hours a day<sup>5</sup>. Therefore, they spend almost 60–65% of their lifetime in a highly vulnerable state.

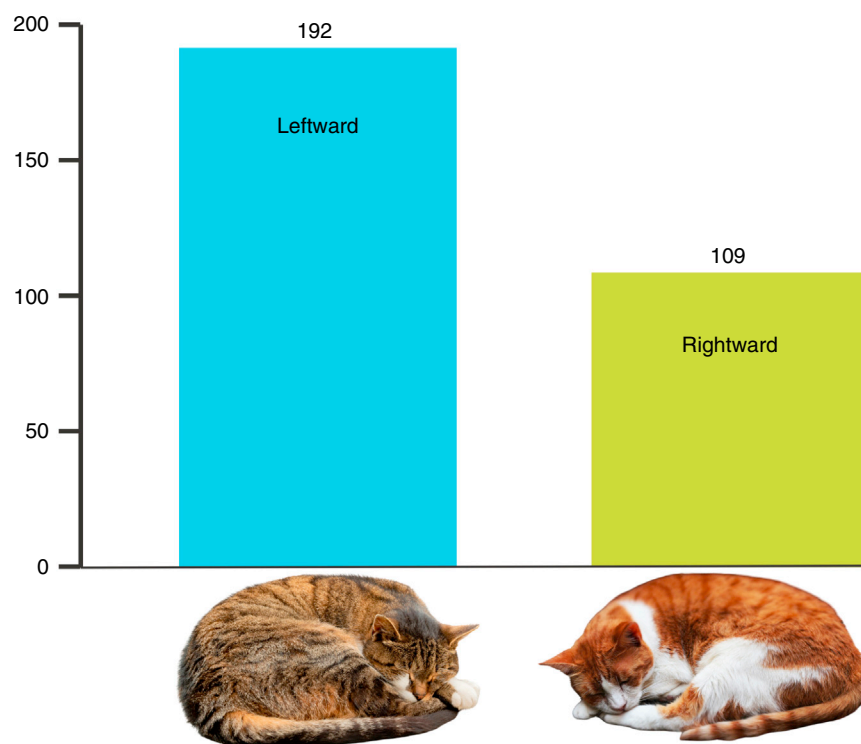
To reduce predation risks, cats prefer to rest in elevated positions so that predators are more visible to them and the cats, in turn, are more visually concealed from predators<sup>6</sup>. In such a spot, predators can access cats only from below. Thus, their preference for resting in an elevated position can provide comfort, safety, and a clear vantage point for monitoring their environments. We hypothesized that a lateralized sleeping position further increases the chances of quickly detecting predators (or to identify careless prey) when awoken.

“To address this question, we included 301 publicly available YouTube videos in our analysis based on our defined criteria, featuring a cat that is visible from head to hind legs with a full-body sleeping position lying on one side, with this sleep side not changing for at least 10 seconds.” Only original, unaltered videos were included, while low-resolution, obscured, duplicated, or modified (e.g., mirrored/selfie) videos were excluded (Supplemental information). Our results revealed a statistically significant leftward bias at the population level ( $\chi^2 = 22.9$ ,  $df = 1$ ,  $p < 0.001$ ) with  $n = 192$  cats (63.8%) showing a leftward sleeping position and  $n = 109$  cats a rightward one (36.2%) (Figure 1). Thus, on average, about two-thirds of cats preferred to sleep on the left side of their body with their left shoulder down. This finding is not only interesting from the perspective that cats show a significant population-level bias for the left side but also fits very well with previous findings on functional specialization in the mammalian right hemisphere. The right hemisphere is dominant for threat processing, and in most species, animals react faster when a predator is approaching from the left side<sup>3</sup>. Moreover, the right hemisphere is dominant for spatial attention<sup>7</sup> and the right amygdala in the processing of fear in response to a threat<sup>8</sup>. Upon awakening, a leftward sleeping position would provide a fast left visual field view of objects that approach from below or from similarly elevated positions, thus allowing optimal conditions for fast processing of external stimuli in the right hemisphere of the brain.

Obviously, other reasons for the lateralized sleeping pattern must



# Lateralized sleep positions in domestic cats



**Figure 1. Lateral bias in sleeping positions of domestic cats.**

About two-thirds of cats prefer to sleep on their left side. Pictures of cats from unsplash: left cat courtesy of Noah Dustin von Weissenfluh (@noah\_dustin), right cat courtesy of Gleb Kuzmenko (@badfantasy).

also be considered. Pregnant cows lie on the left with an average of 56% probability, with the proportion increasing in later stages of pregnancy<sup>9</sup>. Non-pregnant animals show no such asymmetry<sup>9</sup>. Given the way we collected the data, we obviously have no information about the sex or pregnancy status of the videotaped cats. Since even in pregnant cows this population asymmetry is low, it is not very likely that by chance we observed a majority of pregnant cats. ‘Pawedness’ could be a further factor that affects sleeping position. Indeed, about 78% of cats show either left- or right-sided paw preferences<sup>10</sup>. But since pawedness in cats displays an individual asymmetry with about equal numbers of left- and right-pawed cats, our population asymmetry in sleeping position of 65% is difficult to explain by paw preferences. Taken together, we are inclined to believe that the significant leftward bias in sleeping

position in cats may have been evolutionarily driven by hemispheric asymmetries of threat processing, but additional factors cannot be excluded. Although this finding is subject to debate, it could provide an excellent opportunity to study the emergence of asymmetries at the population level, while also helping us to learn more about the nature of one of our favorite pets.

## DECLARATION OF INTERESTS

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## SUPPLEMENTAL INFORMATION

Supplemental information including two tables, experimental procedures, and author contributions can be found with this article online at <https://doi.org/10.1016/j.cub.2025.04.043>.

A video abstract is available at <https://doi.org/10.1016/j.cub.2025.04.043#mmc4>.

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