	Fluid density, kg/m^3	Relative fluid velocity, $m\ s^{-1}$	Length scale, m	Dynamic viscosity, Ns/m^2	Re, unitless
Human/air	1.225	1	1	18E-6	≈ 68E3
Fly/air	1.225	30E-3	2E-3	18E-6	≈ 4
Human/honey	1450	30E-3	1	14	≈ 3

Table S1: Reynolds numbers of different animals walking through different fluids. The viscosity of air to a fly walking at 30 mm s^{-1} is like the viscosity of honey to a human walking at the same speed. In such a scenario, a person would not be able to make ballistic motions due to the damping from the viscous honey. By the same logic, walking in fruit flies is hardly a dynamic motion; instead, it is dominated by viscous forces from the air and elastic forces from its muscles.

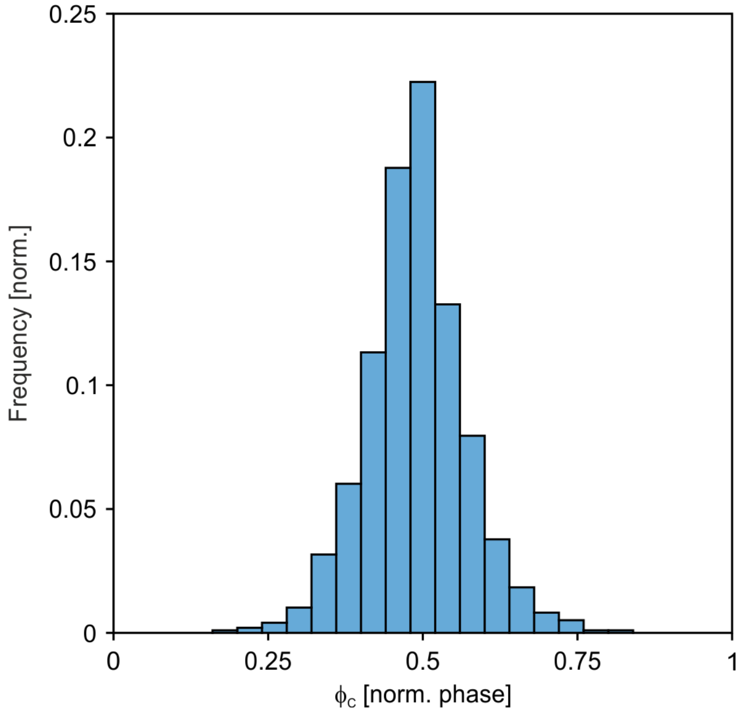

Figure S1: Distribution of contralateral phase relationships ϕ_C at walking speeds below 5 BL s^{-1}. Instead of a bimodal distribution, whose peaks would be centered at around 1/3 and 2/3, contralateral phases at low and intermediate walking speeds cluster around 0.5. This indicates anti-phasic stepping in contralateral legs of the same segment. Idealized tetrapod coordination (ϕ_C = 1/3 or 2/3) is observed rarely.