Improbable Research Review
Improbable theories, experiments, and conclusions
compiled by Dirk Manley, Improbable Research staff

Diapers Delay the March Toward Adulthood, They Say
“Go Naked: Diapers Affect Infant Walking,” Whitney G. Cole, Jesse M. Lingeman, and Karen E. Adolph, Developmental Science, vol. 15, no. 6, November 2012, pp. 783–90. (Thanks to Frances Wilcox for bringing this to our attention.) The authors, at New York University, explain:

[We] asked whether wearing diapers, a seemingly innocuous childrearing practice, affects infant walking. Diapers introduce bulk between the legs, potentially exacerbating infants’ poor balance and wide stance. We show that walking is adversely affected by old-fashioned cloth diapers, and that even modern disposable diapers—habitually worn by most infants in the sample—incur a cost relative to walking naked. Infants displayed less mature gait patterns and more missteps and falls while wearing diapers. Thus, infants’ own diapers constitute an ongoing biomechanical perturbation while learning to walk. Furthermore, shifts in diapering practices may have contributed to historical and cross-cultural differences in infant walking.

Physics of Moshers
“Collective Motion of Moshers at Heavy Metal Concerts,” Jesse L. Silverberg, Matthew Bierbaum, James P. Sethna, and Itai Cohen, arXiv:1302.1886v1, February 13, 2013. (Thanks to Dave Small for bringing this to our attention.) The authors, at Cornell University, report:

Human collective behavior can vary from calm to panicked depending on social context. Using videos publicly available online, we study the highly energized collective motion of attendees at heavy metal concerts. We find these extreme social gatherings generate similarly extreme behaviors: a disordered gas-like state called a mosh pit and an ordered vortex-like state called a circle pit. Both phenomena are reproduced in flocking simulations demonstrating that human collective behavior is consistent with the predictions of simplified models.

Why They Put a Frog in the Milk
“Composition and Antimicrobial Activity of the Skin Peptidome of Russian Brown Frog Rana temporaria,” T. Yu. Samgina, E. A Vorontsov, V. A. Gorslikov, E. Hakalehto, O. Hanninen, R. A. Zubarev, and A. T. Lebedev, Journal of Proteome Research, vol. 11, no. 12, 2012, pp 6213–22. The authors, at Moscow State University, Russia; University of Eastern Finland; and the Karolinska Institutet, Stockholm, Sweden, report:

A nano-HPLC-ESI-OrbiTrap study involving HCD and ETD spectra has been carried out to clarify the composition of the skin peptidome of brown Russian frogs Rana temporaria….Host-defense antimicrobial peptides constitute the major portion of amphibian skin secretion, being a part of their innate immunity. They may be treated as a natural weapon against predators and pathogenic microorganisms. This feature was used by the native population of Russia and Finland a long time ago. For example, milk souring could be prevented if a frog was placed into the milk vessel.