

## Re: New Ethiopian Find – Oldest Biped At 3.8–4 mya

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**From:** Algis Kuliukas (*algis\_at\_RiverApes.com*)

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Rick Wagler wrote:

- > *In this latest go-round all Jason is trying to do is establish*
- > *the point that if you want to make a comparative argument*
- > *you have to make a comparison between the types*
- > *of locomotion at issue. Simple enough point I should have*
- > *thought. Comparing humans in different substrates does*
- > *not help you engage the issue that is your professed interest.*
- > *All it does is prove that gravity is a real phenomenon and has*
- > *measurable effects. Its good to establish the basics but don't*
- > *get carried away with it.*

Fine. I can see you have a point, Rick, but I do think that when discussing the pros and cons of any given locomotion you must not forget the substrate through which the animal is moving. There is a great deal of difference between the energy required walking bipedally on hard, hoof-worn grassland and walking through difficult bush. There must be far less difference for a quadruped. This is more than an assertion. I have performed some simple (but painful!) experiments to test it and it appears to be correct. If one thinks about it for a moment, it is rather obvious. Human bipedal efficiency is due to our striding gait, which is ever more hindered the worse the substrate gets. A quadruped is hindered too, but if it does not rely on an inverted pendulum gait (and apes' certainly aren't), it is less likely to be affected by substrate imperfections. Furthermore, a quadruped is more stable on uneven surfaces or when stepping over low branches or fallen logs whereas these obstacles would require costly changes in posture whilst moving bipedally. Finally, where the bush is very thick with foliage, as would be the case in a tropical rain forest, then clearly the frontal profile area of the body is going to be another factor that will effect efficiency and probably actually favour the quadruped.

I can see that I was clearly very foolish to get into such an argument with such a person. But I think I made a valid point and expected a far more generous response from a scientist on a public discussion group

sci.anthropology.paleo: Re: New Ethiopian Find – Oldest Biped At 3.8–4 mya

such as this. There is something about self-righteous egostical personalities that brings out the worst in me and I admit that I have become part of the