

Life On Planet Earth - Part I

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To live on planet earth, humans are constantly adapting to the demands of their surroundings. As I am always saying (to anyone who will listen) - Form Follows Function. Our anatomical form evolves depending upon the functional demands that we face. Throughout the evolutionary process, the human form has changed to allow it to better adapt to the world around it.

Let's take a look at a few basic examples. An astronaut traveling to the moon adapts to the inherent decrease in gravitational force by having less muscle mass and a decrease in bone density. Why? There is no functional need for these - and thus the body adapts accordingly. On return to earth, there is a gradual return of bone density and muscle mass. Why? Because there is a functional demand placed on the body - and it adapts accordingly. Form follows function. Along the same lines, the average sedentary American, the "couch potato" if you will, has become very finely tuned anatomically to deal with the imposed demands of "couch-potato-dom" - a perfect slouch into the big puffy couch and very strong thumb musculature for the use of the TV remote!

Seriously though, we need to remind ourselves of the simplicity AND complexity of the physioanatomical system that we are. The body adapts - and readily - given the appropriate environment in which to do so. The scientists call this "Wolfe's Law" and the exercise physiologists call it "Specific Adaptation to Imposed Demands" - either way, tissues adapt. If we didn't adapt, then evolution would have failed. "Survival of the fittest" would be just another reality TV show and not the theory brought to us by the work and observations of Charles Darwin. We have mechanisms in place to keep us free of danger (or to warn us immediately if it's impending) and the feedback loop doesn't take weeks for it to spring into action. That's just not the way we, as humans, function.

So now - let's bring this to the world of sport - and activity. If given the appropriate environment in which to do so (i.e. good recovery), tissues adapt to the demands. Ultrarunners, cyclists, mountain climbers - all show specific tissue adaptations. This doesn't happen overnight - but it does occur with amazing consistency. A cyclist climbing in the Alps has no need for a lot of upper body muscle mass (or overall body weight at all) - and you consistently note the best climbers display this trend. This is but one example.

But then we are injured - and what are we told in the clinic? Rest. Let the injury pass, then resume activity as tolerated. "Go ahead, get good at doing nothing, do lots of it, then start back with what injured you in the first place".

Have we forgotten what the tissues require for repair, remodeling and proper development in the first place?

The thought continues in the next blog entry ... tune in for more ...

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