

SPACE LIFE SCIENCES SYMPOSIUM (A1)  
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## UNDERSTANDING SPACE LIFE THROUGH PRINCIPLES OF 'SELF GRAVITATION BIO'

**Abstract**

Principles of 'Self Gravitation Bio' (nomenclature given by Biophysical Society USA in 2008) are outlined 1 on astrophysical principles for 'self gravity' and 'mutual gravity'. Up thrust of fluids (buoyancy) in bio-matters maintains separation for 'mutual gravity'. While on earth, fluids are normally pulled down towards human feet. After 'catapult effect' upon entry into microgravity, inertial gravitational anchor gets withdrawn i.e. normal and hypotenuse vectors of the center of self gravity of secluded bio-matters gets pull out from inertial anchor and inverted in orthographic projection. Head ward shift of body fluids occurs. The net work of blood vessels within the bounds of self-gravity operates in 'convection like flow' from heart (pump). When balanced and isometric contraction in the catheti vector to the center of self gravity, as available under earth-normal condition, get 'relaxed' from 'stretched' condition on entry into space, it result imbalanced contraction in blood vessels. This is reflected from the cross section of the blood vessel of rat2 under earth-normal and space-normal where feed artery, first-order arterioles and basilar artery from brain are shown to be relaxed under influence of intrinsic gravity in space-normal condition. Under the influence of 'isostatic balance' (balance between heavier and lighter mass around center), redistribution and adaptation process sets in space-normal condition. Diagonally opposite parity in physical mechanisms is a feature of self gravitating body. 'Tight' and 'relaxed' condition of inter endothelial cell junction, for example, in the upper part in the brain control blood-brain barrier and vasogenic edema during acute mountain sickness. This is an example of interaction between mutual gravity between earth and self gravity (not commonly believed altitude as factor). Tight and relaxation in the blood flow passage at the farthest points within the bounds of potential energy of self gravity might be triggered by the external gravitational attraction, similar to action of lever over fulcrum at the farthest points, as in Kelly forceps. The physiological crisis encountered during prolonged space flight under microgravity calf muscle atrophy and its remedial measures can be explored with the concept of self gravitation bio, especially with the advantage of self gravity-friendly Yoga routine exercises like foetus posture in correcting various imbalances during space journey. 1. Bhattacharjee I.R. (2013) Self Gravity: The Major Investigation Gap in Life Science. Lambert Academic Publishing ISBN 978-3-659-42698-8. ([http://www.webmedcentral.com/article\\_view/4279](http://www.webmedcentral.com/article_view/4279)[http://www.webmedcentral.com/article\\_view/4296](http://www.webmedcentral.com/article_view/4296))2.[http://www.nasa.gov/vision/earth/livingthings/artificial\\_model.html](http://www.nasa.gov/vision/earth/livingthings/artificial_model.html)