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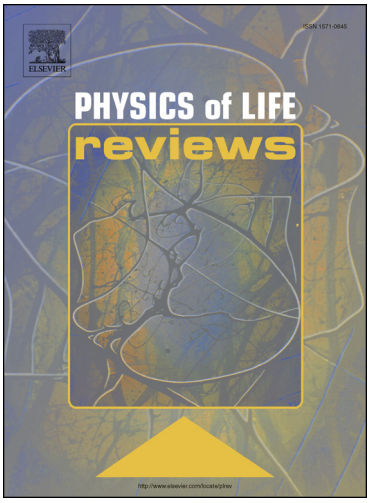

More practical and gentler guides are required for non-mathematicians in ecotoxicology and beyond

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More practical and gentler guides are required for non-mathematicians in ecotoxicology and beyond Comment on: "Physics of metabolic organization" by Marko Jusup et al.

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Use of dynamic energy budget (DEB) model [1], and/or other bioenergetic models would be definitely a key in ecotoxicological applications and ecological risk assessments. One of the critical reasons to anticipate so is that we are required to reduce animal use in ecotoxicity testing that usually measures effects of chemicals on survival or reproduction of organisms [2]. Consequently, the prediction of population-level consequences based on ecotoxicological modeling and suborganismal-level effects evaluated by *in vitro* testing would have more significant value. In this regard, the modeling that can link the sub-organismal responses to organismal- (e.g., survival and reproduction) and then population-levels consequences would be really valuable although challenging [3, 4]. Particularly, DEB models have the potential for providing a mechanistic link between sub-organismal and organismal levels once the effects of chemicals on biogenetics (i.e., growth, increased maintenance cost, etc.) are assessed [3]. It should be noted that, even though a considerable amount of work is required to develop such mechanistic models for local populations of a given species [3], a time-consuming model development may not be necessary for "general" ecological risk assessments as with the case that use of "standard/surrogate" test species such as *Daphnia* is accepted in many regulatory contexts. What will be required is probably the agreement on which models/scenarios are used