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Xi Huo* (x.huo@math.miami.edu). *A population model with two physiological structures*. Preliminary report.

We consider a scalar population model with two physiological structures and study its fundamental properties and dynamical behaviors. It is well-known for a long time that the age-structure of a population affects the nonlinear dynamics of the species in ecology and the transmission dynamics of infectious diseases in epidemiology. In modeling specific diseases, the age could be chronological age, infection age, recovery age, class age, etc. Other physiological conditions or physical characteristics such as size, location, and status have also been taken in consideration in population dynamical models. Recently there are some studies taking into account the combined effects of two physiological characteristics (such as age-age, age-size, age-maturation, age-stage), and we here present our results on the abstract linear version of such problems. This is a joint work with Hao Kang and Shigui Ruan, University of Miami. (Received September 09, 2019)