

# Homeostatic range of the oxidative metabolism: 60 Years of integrative fisiometry Rango homeostático del metabolismo oxidativo: 60 Años de fisiometría integrativa

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The energetic metabolism and its relationship with body weight generated a vivid controversy, since the Rubner's surface law was introduced into biology. Recently, the multifactor theory (Darveau et al) has caused again a revival of this polemic topic. Moreover, the investigations concerning metabolism and body weight include all terrestrial mammals, from the shrew (3 grams) to the elephant (three tons). The corresponding allometric exponent for standard metabolic rate, both theoretical and empirical, fluctuates around an average value of 0.75, in contrast with the surface law, which postulated a value of 0.67. The "metabolic range" (rest vs maximal exercise) does vary from 1 to 10, due to the prevalent influence of the skeletal muscle activity. Recent investigations have emphasized the fact that the allometric exponent is not unique (0.75), but it should be subjected to statistical variability, both in standard and in maximal exercise.