



**The ontogeny of resource allocation in giant transgenic rat growth hormone mice**

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**ABSTRACT**

Dry mass budgets were conducted on transgenic metallothionein-1 rat growth hormone mice and normal *Mus musculus* to assess ontogenic changes in growth, feeding, and resource allocation. Younger mice had higher rates and efficiencies of growth than older mice. Young transgenic mice and normal controls were relatively similar for most features but became progressively dissimilar with time. The rate of growth of transgenics was never faster than the most rapid growth observed in normal mice, but they grew larger by maintaining a higher growth rate to a later age. On a mass-specific basis, transgenic animals consumed less food than normal ones. Reduced feeding was not simply a reflection of the allometric scaling of food intake with larger body size, as younger transgenic mice ate less food than normal ones of equivalent size, even on an absolute basis. Transgenic mice achieved increased growth via superior production efficiency and ontogenically by maintaining greater efficiency to a later age. Differences in feeding and efficiency were detectable even before the mice diverged much in size. A single relationship relating production efficiencies and growth rates for older mice was confirmed, but younger transgenic mice and normal controls displayed fundamentally different relationships between efficiencies and rates of growth. Insights into growth regulation, feeding, life-history trade-offs, and allometric theory are discussed.

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