Maternal effects, maternal body size and offspring energetics: A study in the common woodlouse Porcellio laevis

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What are the consequences of the natural variation in maternal body mass on offspring energetic performance? How are performance traits related to thermal physiology and energetics phenotypically integrated on offspring? To answer these questions, fifty breeding pairs of the common terrestrial isopod Porcellio laevis were set up in the lab. Physiological performance, thermal tolerance and thermal sensitivity were measured in F1 adults. Maternal effects were estimated as: the direct influence of maternal body mass and the variation associated with mothers. Phenotypic integration was evaluated using path analysis. Our results show that: (1) maternal body size affects positively offspring long-term metabolism, (2) maternal variation was significant in many of the physiological traits and (3) there is an intricate set of relationships among traits and importantly, that offspring exhibited compensational strategies among metabolism, thermal sensitivity and thermal tolerance traits. Even if