

READING: Marchand, Ch. 4 -- Pages 104-107; Smith Ch 8, p.132-35 (emphasis on concepts featured in Study Questions below)

I. PHYSICAL and PHYSIOLOGICAL THERMOREGULATION

A. LOWER CRITICAL TEMPERATURE

1. What is the *lower critical temperature (LCT)* of an animal? Define LCT in terms of the relationship between *physical* and *physiological* thermoregulation. See Marchand, page 113, Fig. 36.

2. What is the adaptive advantage of lowering LCT during winter acclimatization?

3. What are three ways in which an animal can *lower* its LCT as part of *acclimatization* to winter?
 - a.

 - b.

 - c.

II. PHYSIOLOGICAL THERMOREGULATION

A. DEFINITION:

1. What is physiological thermoregulation?

2. Distinguish physiological from physical thermoregulation:

B. EXPERIMENTAL:

1. Describe an experiment to determine when physiological thermoregulation has "kicked in" in a small mammal.

2. What is *brown fat*? How is it different from white fatty tissue? Why is its function likened to a "heating pad?"

III. PHYSIOLOGY OF ACCLIMATIZATION – as related to “physiological thermoreg.”

[[Continued later]]