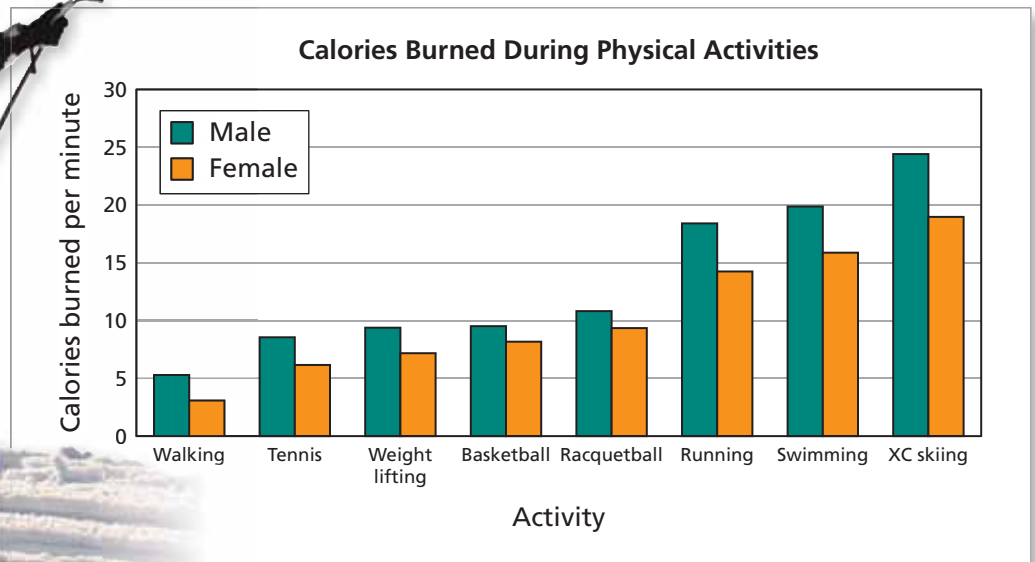


EXAMPLE 6 Analyzing Energy Use in Outdoor Sports

Cross-country (XC) skiing is one of the most demanding outdoor sports. The graph compares the number of calories burned per minute for eight activities.



Why does cross-country skiing consume so much energy?

SOLUTION

- Cross-country skiing is 95–100% dependent on aerobic energy output.
- Cross-country skiing consists of repeated contractions of arm and leg muscles.
- Of the total muscle mass of a human body, cycling uses 40%, running uses 60%, and cross-country skiing uses 80%.
- In spite of the fact that skis glide on snow, friction is still present.
- Cross-country skiing is a cold weather sport. Your body uses energy trying to keep you warm.



✓ Checkpoint

The graph shows the oxygen uptake for U.S. and Swedish cross-country skiers. Why do you think the uptake is greater for Swedish athletes?

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