Relationship between body mass and bite force

For various species of Canidae (dogs, foxes and wolves) the average body mass (kg) and bite force at the canine (N) were measured. Is there a relationship between the size of the animal and the bite force? Source: Christiansen and Wroe (2007), “Bite Forces and Evolutionary Adaptations to Feeding Ecology in Carnivores,” Ecology, 88(2), pp. 347-358.

Fit Y by X

Y, Response: BFca (N)
X, Factor: Body Mass (kg)
Block:
Weight:
Freq:
By:
JMP Analysis of Bite Force By Body Mass

Linear Fit

*Predicted* BFca (N) = 30.391172 + 13.428422 Body Mass (kg)

**Summary of Fit**

- RSquare: 0.961822
- RSquare Adj: 0.960353
- Root Mean Square Error: 21.85478
- Mean of Response: 154.0286
- Observations (or Sum Wgts): 28

**Parameter Estimates**

| Term             | Estimate  | Std Error | t Ratio | Prob>|t| |
|------------------|-----------|-----------|---------|-----|
| Intercept        | 30.391172 | 6.355742  | 4.78    | <.0001 |
| Body Mass (kg)   | 13.428422 | 0.524686  | 25.59   | <.0001 |

**Residual by Predicted Plot**