

The Forces Caused from Biting

	Max Clench (Right)	Max Clench (Left)	*Moderate Clench (Right)	*Moderate Clench (Left)
Matt	237.98 N	246.88 N	106.76 N	91.19N
Kathleen	117.88 N	142.34 N	108.98 N	95.64N

*Note: for Kathleen's moderate clench, she performed a grinding motion

This table shows the forces the jaw puts on a tooth while biting down. The test subjects were both healthy and in their early twenties. The ranges may be different for people of different ages or with less than adequate health.

The setup of the experiment could also lead to less than perfect readings of the true forces. Here is a brief explanation of the set up used, and some errors that arose from the setup.

A machine containing a load cell was used to measure the forces. Two L-shaped pieces of metal were attached to a load cell in the machine. The metal used was steel brass plated and 5/8 inches thick. The person then bit down on the metal, putting force on the load cell. This force on the load cell is what was measured (See Figure 1)

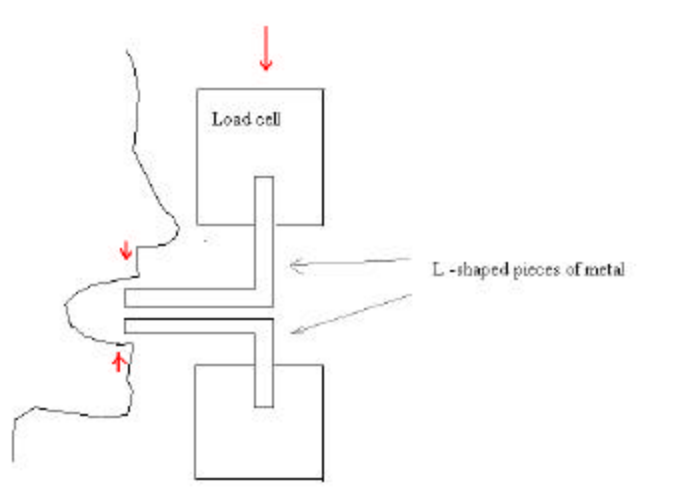


Figure 1: The set up of the machine. As the teeth bite together the top load cell displaces downward and measures the force being put on it. The force from applied load cell should equal the force of the teeth biting down.

The ideal situation is that the force of the load cell equals the biting force, however there were some errors in the experiment. First, the subjects were biting down on hard metal, so this made it uncomfortable to bite down with maximum force (The maximum forces may actually be higher than the reading in this experiment). Also, when Matt bit down on the metal, he bent the metal, causing the force reading on the machine to be lower than the actual force he was applying.

Although there was some error in the experiment, these measurements can be used to see the ranges of force the jaw applies when biting down.