INTRODUCTION

- Diving birds can withstand repeated high-speed water impacts. For example, Northern Gannets reach impact speeds exceeding 60 mph (Lee, 1981).
- The neck structure appears to be unable to withstand such forces, being susceptible to buckling due to its long, slender, segmented, and bent nature upon impact, see Figure 2.

METHODS

- Vertebrae are simulated using laser-cut plates stacked to create diverse musculature connections.
- Muscles will be replicated using nonlinear elastic cords, see Figure 6.
- Impulse testing will involve a striker imparting an impulse to the system, that will be tracked by utilizing high speed optical tracking techniques.

DISCUSSION

- Kuroda (1962) and Bohmer (2020) demonstrated the strong correlation between muscle connections, feeding behavior, and their complexity, see Figure 4.
- The intricate shape of vertebrae and muscular connections is simplified to develop a physical model.
- Consequently, experimental investigation is conducted to calibrate our mathematical model, see Figure 5.

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LITERATURE