



# The Atlatl

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Credit: <https://www.thoughtco.com/what-is-an-atlatl-169989>

## Research Question

What shape and size of the atlatl and person throwing is the best for distance?

## Introduction

An Atlatl is a mechanism that uses leverage and force to propel a dart/spear a lot farther than if you threw it free hand. The atlatl acts as an extension of your arm and an additional lever when throwing. Atlatls also come in different shapes, and with different people throwing them. So we wanted to test out what variables would make an atlatl more effective for distance throwing.

## Methods and Materials

To conduct this experiment, we used:

- 3 different atlatls
- 2 packs of atlatl spears ( 6 ft )
- 4 different sized people

And to run this experiment,

- First, we practiced with our 3 different Atlatls.
- Then, we decided which atlatl we wanted to get rid of out of the 3 and keep the other 2
- After that, Alex threw 5 spears with both atlatls, and record the longest distance.
- And before individually throwing, we measured the height and wingspan of each person
- Then we took the atlatl that performed the best and each of us threw 5 spears with it
- The longest throw by each person was recorded into data for the results

## Discussion

So in the first part of experiment we tested an atlatl with less support compared to an atlatl with more support, and the atlatl with less support performed better. We think this atlatl performed better because it was more comfortable to hold. An atlatl with more support will have more "add-ons" to it, making it more heavy, even if it is a slight difference. Also the more "add-ons" that an atlatl has the less comfortable to hold, therefore messing with the performance of the throw.

In the second part of the experiment we tested if height and wingspan of a person affected how far they could throw a spear with the atlatl selected from part 1 of the experiment. And at the end, the results were extremely inconsistent! Alex who was the third tallest person threw the farthest, while Cameron who was the tallest, threw the shortest! The best explanation for this that the group could come up with is that the distance that the atlatl spear was thrown was based on skill of the person. Alex had background knowledge how throwing an atlatl may work. So that's why he was able to throw an atlatl spear farther than Cameron, who had no experience with anything remotely close to an atlatl.

## Conclusions

In conclusion we learned that the atlatl with the least support/addons and the person that is taller and has more practice is the one able to throw the dart farther.

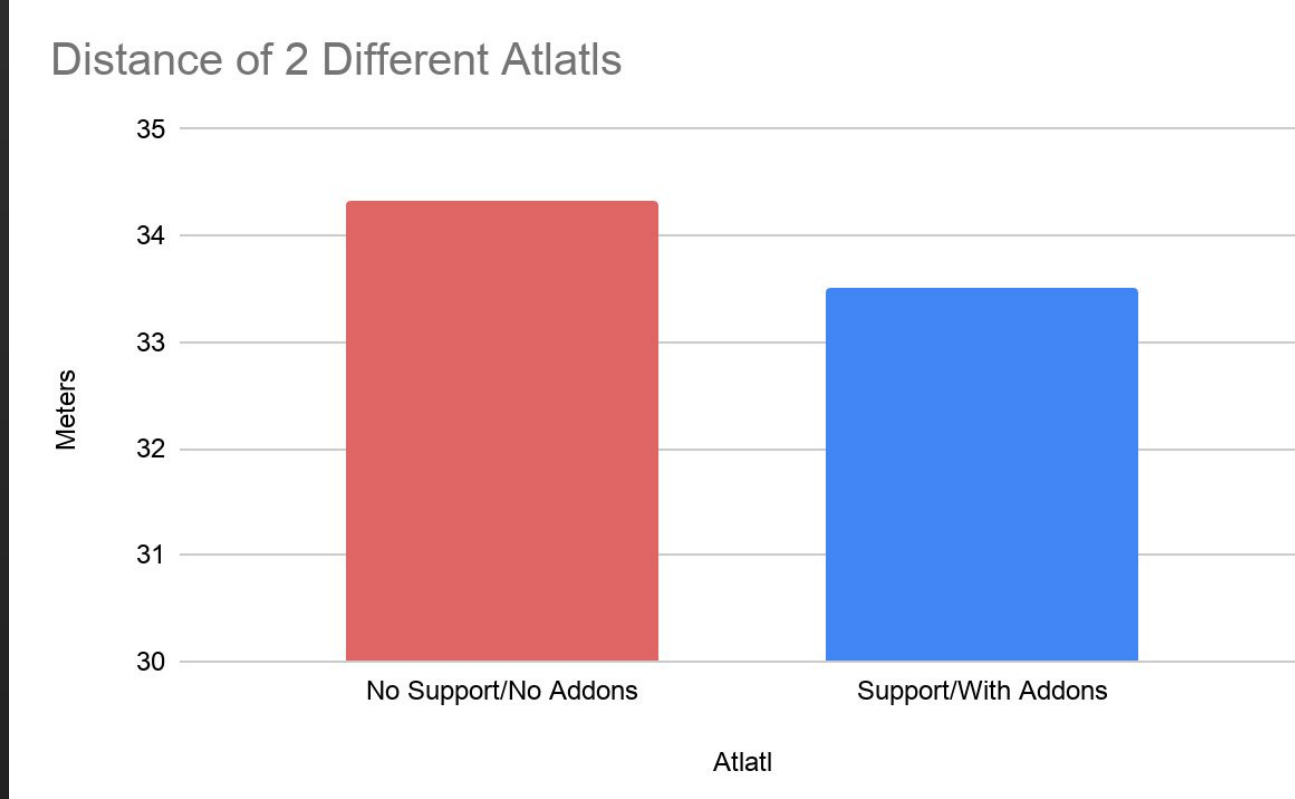
## Results

After running this experiment, we got very interesting results.

The results of the first section of this experiment ended up with a miniscule difference. The atlatl with the finger grooves, and the least support, ended up launching the spear farther than the atlatl with the curve for someone's entire hand to fit in. The one with less support was able to throw a spear to 34.32 meters, while the other with the hand curve was able to launch the spear 33.5 meters.

Using the atlatl with less support - since we could launch atlatl spears a farther distance - we used that atlatl for the rest of the experiment. We should note that for this part of the experiment, we threw from the top of a hill downwards, since the wind that day being rough. Cameron, Grady, Gabriel, and Alex then threw with the atlatl with less support, taking 5 rounds each. Cameron, who was that tallest and measured in at 1.82 meters with a wingspan of 75 cm, had the farthest throw of 22.5 meters. Grady, who was 1.53 meters tall and had a 60 cm wingspan, ended up launching the atlatl a pretty large distance, that being 26.7 meters. Gabriel who threw after Grady, and measures in at 1.75 meters with a 70 cm wingspan, threw the atlatl 24.1 meters. Alex who came last, and measures at 1.73m tall and 70 m for his wingspan, threw at an astonishing 32.9 meters!

Person	Height	Arm Length	Longest Throw
Cameron	1.82m	75cm	22.3m
Alex	1.73m	70cm	32.9m
Gabriel	1.75m	70cm	24.1m
Grady	1.53m	60cm	26.7m



[Photo 1.] Three different sizes of atlatl throwers.



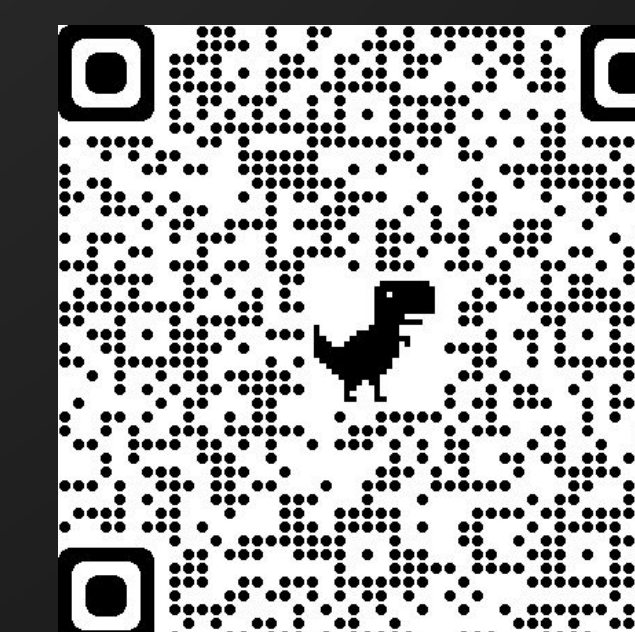
[Photo 2] The top and bottom atlatl presented in the picture above both have what we would consider, "add-ons" they are different in style from the middle atlatl, which has no extra carvings into it, acting as a base of some type.



[Photo 3.] Three atlatl in use.

Acknowledgement: This informal afterschool program is funded by a grant awarded to Binghamton University by the National Science Foundation Advancing Informal STEM Learning (AISL) Pilot & Feasibility Program.

Scan here to see our project!



Youtube video!

Pictures of us throwing atlatls!

