

The

ATLATL

“Too long have I hunted mammoth alone!”

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ISAC Sport and Science

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The International Standard Accuracy Contest (ISAC) was developed in 1996 by Lloyd Pine and is the one event that atlatlists all over the world take seriously and use to compare skills. Lloyd heroically maintained the records and produced a yearly list of scores, published on line and in the Atlatl. When we decided it would be interesting to look at trends through time, Lloyd kindly provided us with all the available records from 1996 to 2003.

Although ISAC targets and scoring are standardized, and the rules are followed pretty closely, scorekeepers at events range from precise to sloppy. Lloyd did his best with the sheets submitted to him, but for every tidy one there is one that is full of errors and inconsistencies. Sometimes they are illegible, and there is often missing information, particularly age, sex, and equipment type. With student Ana Nagel we spent literally dozens of hours trying to make all the names and scores correct for each year as we computerized the scores. When we combined all the years, the two of us spent more days proofreading 13,500 entries. Names were the main problem, since if we want to know how many people are involved, we don't want to count the same person six times just because they appear as Bob, Robert, Bobby, Rob, Robert Jr, Robbert, Robby and Xobert. As a result, our counts of numbers of atlatlists undoubtedly have some slight errors.

With the analyses of eight years of ISAC scores that follow we will show 1) some social trends in the atlatl world, 2) the development of the sport, and 3) argue that modern ISAC scores are actually useful in understanding prehistoric atlatls.

The 8 years of ISAC produced 13,500 recorded scores. (We couldn't include all the 2004 scores when we did the analysis, but have some information on top scores at the end of the year.) A total of 2310 different throwers participated (See Table 1). The number of participants in a year now seems to have leveled off at about 750, and the number of events with ISACs at around 100. After the first couple of years, about 1/4 of participants have been women, and about 1/5 youth (under 16 years old). This reflects our attempts to be a friendly, family oriented sport, and to attract new comers (who are often children) at our events. The number of people who participate consistently is lower. Counting only those for whom there are 10 or more scores recorded over the 8 years, we have 250 total "frequent participants," who accounted for 9460 of the 13,500 scores. Of frequent competitors, 51 are women, 155 are men, and 44 are youth (8 girls, 36 boys). Some of these individuals have competed as many as 43 times in a single year. Terry Keefer and Gary Fogelman have the most scores on record (223, 212), with Sharon Keefer at 183.

| Table Growth of Competition between 1996 and 2003 | | | | | | | |
|---|------------------|-------------------|-------------------|---------------------------------|--------------------------------|-------------------------------|-------------------------------|
| Year | Number of Scores | % Scores by Women | % Scores by Youth | Number of Throwers ² | % Throwers Female ³ | % Throwers Youth ⁴ | Number of Events ⁵ |
| 1996 | 272 | 10 | 2 | 134 | 14 | 2 | 23 |
| 1997 | 398 | 6 | 4 | 128 | 9 | 5 | 41 |
| 1998 | 1116 | 20 | 11 | 422 | 22 | 11 | 62 |
| 1999 | 1754 | 22 | 16 | 541 | 19 | 19 | 67 |
| 2000 | 1952 | 23 | 13 | 551 | 21 | 17 | 73 |
| 2001 | 2788 | 27 | 15 | 761 | 25 | 22 | 108 |
| 2002 | 2532 | 27 | 14 | 710 | 24 | 20 | 86 |
| 2003 | 2688 | 26 | 12 | 754 | 24 | 18 | 90 |
| Total | 13500 | 24 | 13 | 2310 | 24 | 20 | 483 |

1 Only results in a proportion of 2 Total number of throwers 3 % of individuals 4 % of individuals 5 Number of Events because dates were scores lower number both women and is number of individuals participating in any participating in any counts multi-day not consistently above 40 of scores and youth as well as who participated in any of year who have been year who have been events as one event. recorded. were total the proportion of the 8 years. female (different youth (453 different 1999 events are recorded competitors scores attributable to women) youths) probably 2003 events are for 1997. and probably them. undercounted, This reduces the them.

Fifty-four percent of all scores (7,289) are with primitive equipment, and 42% (5745) with modern, although the recording of equipment is not very consistent (466 cases missing that information, or 4%). The overall average of primitive equipment scores (51.8) is higher than for modern gear (44.2). For frequent participants only, the averages are 60.3 for primitive gear and 53.9 for modern. This is apparently because several of the highest scoring and most often competing individuals use primitive equipment, not because primitive atlatls are necessarily better.

When will we break 100? We had hoped to see a rising trend in scores that would allow us to make a prediction. As sporting interest in atlatls grows, so does skill. More people are practicing, and over the 8 years of ISAC records, the top scores have risen, and the number of people achieving higher scores has increased dramatically (Table 2). But it also looks like scores have flattened out. Overall scoring average is only creeping up, and the top scorers have reached the upper nineties but there doesn't seem to be a trend that would predict future improvements (Table 3). In 2004, maximum scores and number of high scorers went down from 2003. We think the best atlatlists have now reached about the level that average people with normal equipment will usually achieve. Someone is bound to shoot 100 in the next few years, but it will be a rare and unpredictable event. If atlatling became an Olympic sport with money and effort poured into it, we might develop some super-athletes who could do a bit better, but it seems to us that atlatl skills are not likely to develop to the point where the ISAC is too easy to be a challenging competition. This is important for interpreting prehistoric atlatls.

Unless you have some skill with a tool, you cannot give it a fair test. Just because a modern archaeologist can't fluke a Clovis point or hit a target with a dart does not mean that the technology didn't work. It is impossible now to watch a group of people who grew up depending on an atlatl every day to catch dinner, so it is theoretically possible that a Clovis hunter could have scored 10X every time. What we know about ethnographic hunters makes this real unlikely, but with 13,500 ISAC scores over 8 years we now have a pretty good sample of what normal people can do, including some who have worked hard for a long time to become expert. We can look at the learning process a bit too.

Women's scores lag behind men. This is not surprising since our society is less likely to encourage girls to participate and excel in throwing sports. But a few women are reaching the level of the top men, which is also not surprising. There is no physical reason why women should not be as accurate with an atlatl as men, and in fact, one of the advantages of atlatls in prehistory may be that they made it possible for a lot more people of less size and strength to be successful hunters. Our youth

scores also average lower than adults. Children have very real physical limits to strength and coordination. At 6-7 they start to hit the target, and there is another big jump around 11-13. By 14-16 the best youths are competing with the adults.

| Year | Scoring 70 and Above | | | | Scoring 90 and Above | | | |
|------|----------------------|---------|--------|---------|----------------------|---------|--------|---------|
| | Females | | Males | | Females | | Males | |
| | Number | % Total | Number | % Total | Number | % Total | Number | % Total |
| 1996 | 0 | 0 | 15 | 13 | 0 | 0 | 0 | 0 |
| 1997 | 2 | 1.8 | 36 | 31 | 0 | 0 | 1 | 0.9 |
| 1998 | 1 | 1 | 49 | 15 | 0 | 0 | 3 | 0.9 |
| 1999 | 4 | 4 | 63 | 14 | 0 | 0 | 6 | 1.4 |
| 2000 | 6 | 5 | 73 | 17 | 0 | 0 | 13 | 3 |
| 2001 | 9 | 5 | 94 | 17 | 0 | 0 | 15 | 2.6 |
| 2002 | 14 | 8 | 107 | 20 | 0 | 0 | 16 | 3 |
| 2003 | 10 | 5 | 109 | 19 | 1 | 0.5 | 22 | 3.9 |
| 2004 | 6 | | 81 | | 0 | | 15 | |

1 This is the total number of individuals scoring over the indicated goal. Most are adults, but some are youth.
 2 Only scores over 40 were kept which results in inaccurately high percentages of the total.
 3 Only scores over 70 for men and 50 for women were available for 2004.

In terms of learning, if you look at scores for the 34 men and one woman who have scored 90 or better at some time, there is a very strong tendency for them to reach their peak, or close to it, after one or two years of competition, whether you track average yearly score maximum (Figure 1). What this all means to us is that you do not have to be born with an atlatl in your hand to become expert. A couple of years of practice can do it. It probably also means that prehistoric atlatl hunters were not incredible marksmen that our myths would like us to believe. Yes, there are rare individuals who can shoot aspirin tablets out of the air with a bow and arrow, but the ordinary hunter is competent and successful at a much lower level. We may see an atlatl Annie Oakley some day, but for understanding use of prehistoric atlatls, we think the ISAC competitors are skillful enough.

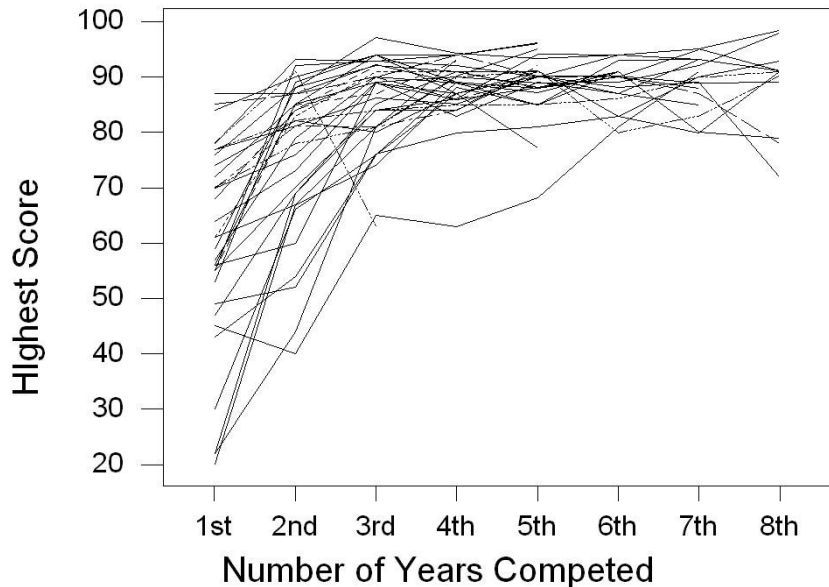


Figure 1. . Learning curve for atlatlists who have scored 90 or above at some time (N = 35), maximum score for each year graphed against number of years

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Similarly, attempts to set distance records with the atlatl climbed steadily at first, and may have peaked, although there does not seem to have been a lot of interest in challenging the records in the last few years. David Engvall holds the world record of 848' 6 5/8" (258.64m) for an atlatl throw using modern materials and designs (Engvall 1995; Tate 1995). Using primitive materials Wayne Brian's record is 475' 3" (144.9 m, Clubb 1994). The world record for a modern aerodynamically designed javelin throw is 98.48 m.

These modern standards let us judge some ethnographic accounts. When Edge-Partington (1903) recorded Australians throwing light reed spears 300 yards with a woamera, and heavy wooden spears "accurately to a distance of 120 yards" by hand, we should wonder if he wasn't exaggerating a bit. Compilations of ethnographic records show that the normal hunting range for bow and arrow or for spear throwers was 10 to 30 m (Cundy 1989; Cattelain 1997). This accords well with the experience of modern sport atlatl use and competitive primitive archery.

The ISAC could be applied to archaeological experimentation as a measure of accuracy in testing atlatl designs, or to calibrate experimenters. Unless an experimenter is proficient with a prehistoric technology, no fair trial can be made. A modern experimenter should perhaps develop enough skill to score in the 70s on an ISAC target, a scoring range that is considered good but not exceptional. Otherwise, there is probably a failure of equipment or skill that would make the experiment suspect. Some of the early experimenters were not up to snuff by modern standards. Peets (1959) was unable to hit a man-sized target at 20-40 yards. Browne (1940) admitted that he could not have hit a bison one shot out of 10 at 30 yards after 6 months of practice, and concluded that "any close degree of accuracy is impossible with the atlatl." Modern atlatlists can say with confidence that they were doing something wrong. Their experimental results should be regarded with suspicion. The suggestion that atlatls would only be useful for flinging spears at random into massed herds can be dismissed with scorn by the many atlatlists who have taken deer and other game.

| Table 3: Scores 1 of All Atlatl Contestants by Year | | | | | | |
|--|------------------------|--------------------------|-------------------------|---------------------------|----------------------------|------------------------------|
| Year | Number of Males | Number of Females | Mean Score Males | Mean Score Females | Maximum Score Males | Maximum Score Females |
| 1996 | 116 | 18 | 46.33 | 23.31 | 87.0 | 43.0 |
| 19972 | 117 | 11 | 62.12 | 52.27 | 93.2 | 72.0 |
| 1998 | 329 | 93 | 47.47 | 23.80 | 93.0 | 67.0 |
| 1999 | 441 | 101 | 50.58 | 29.71 | 97.2 | 73.0 |
| 2000 | 437 | 114 | 52.53 | 32.39 | 94.3 | 81.2 |
| 2001 | 568 | 195 | 53.33 | 32.35 | 94.1 | 85.2 |
| 2002 | 537 | 174 | 54.61 | 35.20 | 96.2 | 84.1 |
| 2003 | 568 | 187 | 55.22 | 37.29 | 98.5 | 92.1 |
| 20043 | | | | | 97.3 | 87.0 |

1 Scores with statistical computation; thus, as decimals for 93XX=93.2. 2 Only scores above 40 were recorded for 1997. This results in inaccurately low numbers of competitors. 3 Only information on high scores was available for 2004.

When we started shooting ISACs in 1996 it did not occur to us that the scores from a standardized competition would interest anyone except our small world of spear-throwing friends. Nevertheless, the ISAC does have some application to understanding prehistoric atlatls. This is even more true for the larger world of modern atlatl sports. Modern atlatl sport provides subjective experience, systematic experimentation, a network of communication, and a body of experienced throwers to anyone who is interested in our favorite prehistoric technology.

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