

AN EVALUATION OF THE EFFECTIVENESS OF THREE METHODS OF SPEAR GRIP USED IN ANTIQUITY

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Abstract. This paper describes some of the different types of grip used in antiquity to hold spears when used for stabbing attack. There has been some debate about the effectiveness of a particular method of gripping a spear when it is used in attack and this is discussed. The ancient pictorial evidence concerning spear grips is reviewed and summarised. Field trials to compare the effectiveness of three distinct methods of single-handed grip using a spear were undertaken and the observations of the field experimentalist are considered and described. The effectiveness of different grip methods were quantified in laboratory trials using an instrumented spear, in which the impact force and energy were measured. These laboratory trials indicated that, of three grip types, the over-arm grip delivered most energy, the under-arm about half that of the over-arm, and a shoulder-level grip the least.

HISTORICAL INTRODUCTION

Two recent publications by Stephenson [1] and by Underwood [2] suggest that in Roman and medieval times the spear was not used in the conventional over-arm position so familiar from Greek vases but was held under-arm with the thumb forward, at shoulder level (Figure 1).

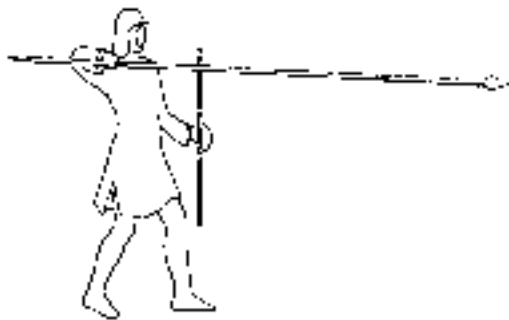


Figure 1. Shoulder-level grip.

Underwood only suggests it as a possibility but Stephenson maintains that this was the normal Roman grip. He argues that all Roman monuments which appear to show the spear being used over-arm, are in fact showing soldiers throwing javelins. He bolsters his argument by pointing to the scene on the Arch of Constantine that shows three Roman soldiers with their spears held in the conventional over-arm position as illustrated in Figure 2.



Figure 2. Roman soldiers using spears as depicted on the Arch of Constantine.

He claims that, as the scene shows the siege of Verona, the soldiers must be holding javelins. This is a very difficult argument to challenge, except where the soldiers are clearly shown in close combat. In view of this one of the authors decided to examine the pictorial evidence.

The Greeks during the age of the city-states held their spears in two ways:

- In the over-arm position, gripped at the point of balance, with the thumb pointing backwards (Figure 3). This was by far the most common method. Nearly 70% of vase painting representations [3] show this grip. It is always shown when the phalanx is depicted.
- In the under-arm position, gripped at the point of balance at waist level, with the thumb pointing forwards (Figure 4). This seems to have only been used in loose formation or in single combat.

A third method, the two-handed grip is very rarely shown on vase paintings. When depicted it is shown both under-arm and over-arm. In the latter case the thumbs point backwards. The Macedonians used the two-handed grip and were copied by several Greek states during the Hellenistic period. Unfortunately no clear representation of this grip is shown in any Greek sculpture or painting. However, numerous Roman mosaics show this grip being used by huntsmen fighting large animals such as bulls, wild boars and large cats (Figure 5). The grip is invariably shown with both thumbs facing forward. There seems to be no reason for supposing the Macedonians held their pikes in a different way.



Figure 3. Hoplite using a spear over-arm as depicted on vase paintings.