INTRODUCTION: The Electric Terminal Device (ETD) is a unique example of hybridization of body-powered (BP) features with electric components - combining classic metal hook fingers with a high force motorized drive. Water-resistant housings allow use in wet/dirty environments. After a 10-year history, lessons gained from the ETD are found in a) Five case studies who demonstrate the range of functions, and b) survey data from detailed questionnaires comparing the wearers’ functional ratings, and documenting usage.

METHODS: Survey of experienced wearers: (n=17). Detailed questionnaires have been applied to a representative group of wearers, including transradial, transhumeral and higher levels. Comparisons with the wearer’s earlier TDs and quantifiable data are derived from 5-level ratings in functional areas of TD usage. The extent of usage is also documented from the questionnaires.

RESULTS: Figure below shows the data for hours per day – also documented are the hours of non-work days usage (ave.77% of work hrs), the percent of usage compared with the wearer’s other devices(ave.82%), importance level of the ETD to the wearer (12/17 answer “very important”), and self-rating of level of activity (12/17 answered “heavy-duty usage”).

Hours of ETD usage during a work day averaged 12 hrs over 17 wearers

The data for performance, compared to the subject’s earlier TDs, compared many features, including speed, appearance, prehension of both small and large objects, ease of use, etc., as well as overall rating. The table below shows results of the overall rating:

DISCUSSION: the ratings are a strong validation of the trial fittings program routinely performed in clinics – wearers who do not prefer the ETD simply select another type of device. Admittedly, this biases the data, but for a very positive clinical result.

CLINICAL SIGNIFICANCE: The ratings and the case studies presented demonstrate that many work and hobby activities create functional needs which are not met by available hand-type TDs. Interchangeability of the ETD with a variety of other TD options greatly increases the wearers’ breadth of activities. The case studies also demonstrate that stereotypes of hand vs. hook wearers are unreliable - male/female, rural/urban, blue-collar/white-collar, unilateral/bilateral do not predict the adoption or non-adoption of a hook-type prosthesis.

Replaceable hook fingers w/ Ti option
On/Off Switch, Safety Release, Electronics & Drive, all sealed from Water & Dirt:

Figure 1: The basic ETD

Figure 3 - Overall Ratings of ETD Performance

The “Overall” ratings were the most uniform with the average at 1.83, out of 2 (equating to “much better”).