

# Postmen activity's analysis

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**Abstract.** This study examines the postmen activity and the bag used in their task, which should transport the weight without affecting the locomotor system and the attitude of the worker. Studies were conducted on the activity of the postmen and transportation of loads, analyzing functional and ergonomic aspects of load distribution, as well as surveys with users, which made it possible to verify and prove the problems presented. Thus, the following work was developed in order to demonstrate the importance of applying an ergonomic product design.

Keywords: postmen, bag, ergonomomy.

## 1. Introduction

Considering the functions involved in the postmen's activity, it is difficult to reconcile a product that distributes the load over the worker's body, softening the weight and improving the mail delivery and internal organization. The model currently used generates unnecessary postures and stresses by taking time to search the letters in the bag, as well as supporting the weights improperly.

Considering these problems, a field approach was performed with the users, complemented by a brief analysis of the bag used by them, in order to verify which are the main problems and needs of these workers. The results showed that although delivering letters is an old activity, the development of the task is still precarious.

## 2. The bag

The bag used by postmen is made of lightweight blue tarp with adjustable side handle [5]. It has about 0.05 m<sup>3</sup> of volume. There aren't divisions inside, and in its outside there is a small pocket which brings the company logo. Its closure is done by a plastic buckle.

According to Tortelli [2], the postmen bag style is often used erroneously, with the illusion that balances the weight over the body. This style of bag should not be used with heavy load, because it forces the user to compensate the weight applied in one shoulder, gesture which can cause scoliosis [4]. The author [4], in a postural assessment in military school in Curitiba (Brazil), found that from 11% of students who had scoliosis, a 100% used 'postmen style' bag to transport their material. In order for humans to support heavy load, there are backpacks, which help distribute the weight over the body symmetrically [3].

## 3. Approach to the postmen

### 3.1. Subjects, materials and procedures

101 users of both sexes were interviewed in the states of Paraná and Santa Catarina. The approaches were conducted in the units of the Brazilian Post Office (Correios) or during the practice of the delivering activity. The postmen were between 24 to 55 years old, worked in the activity between 2 and 29 years and all of them performed the activity on foot.

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The method of approach was face to face with a semi-structured inquiry, and together was also used a postural assessment scale based on Corlett and Manenica diagram [1].

### 3.2. Results and discussions

The average of letters delivered by postman is 2500 units per day and the delivery period is 4 to 5 hours daily, always in the afternoon. Among the major difficulties in the activity, the main expressed were rainy days, the weight and the amount of letters fit in the delivery time. The fact that the number of letters does not adjust in the time available makes postmen take more than the stipulated load, and the rainy days make the task difficult in large part, mainly because the bag is not waterproof.

They commented a need for more space in the bag, resulting mainly in space for water, sunscreen lotion and cell phone. In addition, 90% considered the shape of the bag and the side handle not good.

The postural assessment scale was used to measure the intensity of discomfort/pain in the regions of the body. After compiling data, it was clear that a large majority feels discomfort of moderate to intolerable during the activity. The identified regions with the biggest problems were the shoulders and lower back which had a higher incidence in intolerable intensity

(Fig. 1). It is possible to note that the posture adopted by the postmen during the activity is not correct and generates discomfort for them.

### 4. Conclusion

The results presented by the activity analysis and the study of weight transportation, highlights the necessity of a change in the way of carrying mail for delivery, and considering that so far the problem has not been solved, this study makes clear the importance of ergonomic design intervention in this product.

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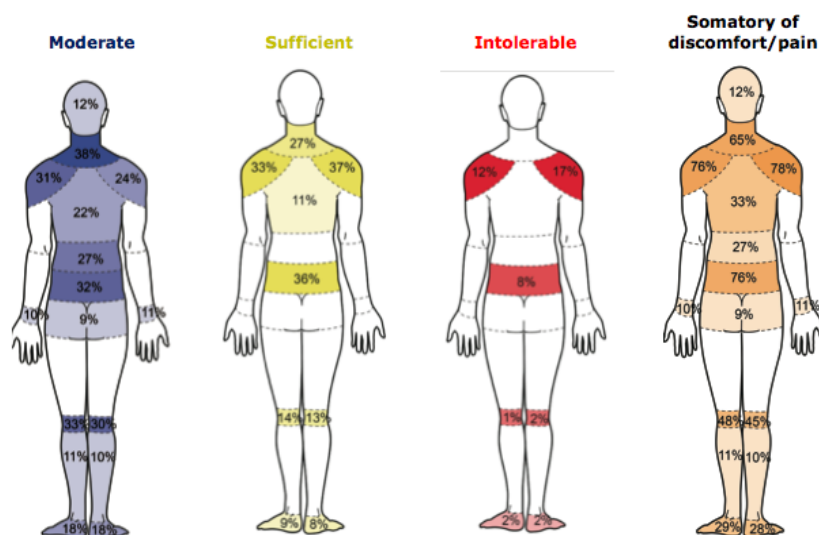


Figure 01 - Intensity of discomfort / pain during the work: moderate, sufficient and intolerable in the three images on the left and intensity somatory on the extreme right.