

STERILIZABLE WORKBENCH

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Abstract

We created a sterilizable workbench for use in orthopaedic procedures requiring heavy tools and high energy manoeuvres. In our article we present the setup of the workbench and its accessories making material work during operations safer and more precise.

Keywords: workbench, surgery, fixation, stabilisation

INTRODUCTION

Orthopaedic surgery is well known as one often requiring heavy tools and high energy manoeuvres. Bone milling, plate bending, structural graft modelling are quite difficult to realize on the classic theatre equipment which all have the aim of being light and easily movable to facilitate their handling for the personnel. This controversy motivated us to create a sterilizable workbench allowing safe and comfortable workplace for such operations.

MATERIALS AND METHODS

The bench table is held on foldable legs, allowing easy storage when out of use. The legs are made of solid iron, assuring stability by weight, which is 88 lb (40 kg). In the folded position four wheels emerge downwards, so carrying it is easy despite of the heavy weight (*Figure 1*).

Once in place the legs are opened around an axis in mid-height, this way they form an X shape. Two hinged plates are mounted at the bottom of the legs. When they are bent down on the floor, the four wheels lift up; this way the table is auto-stabilized on the ground (*Figure 1*). Further stabilization is achieved when the surgeon steps on this plate during utilization.

A sterile single use drape is pulled over the bench with force, so the four emerging spikes situated on the top penetrate it. The sterile table is positioned on the spikes by means of four orientating holes. Once the spikes entered the borings a spiral latch has to be pulled down, this way the legs are slightly distanced, resulting in the stabilization of the bench (*Figure 2*).

The bench table is made of polyoxymethylene plastic, (Derlin[®]), which is accepted for food

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Figure 1. The workbench in the folded and open auto-stabilized position



Figure 2. The spiral latch being pulled down to further stabilize the workbench during surgery



Figure 3. The side of the table with the mounted splint for stable attachment of instruments

industry purposes, is heavy enough (26.5 lb, 12kg) and resists mechanical stresses well. The upper surface of the table is perforated in different locations, allowing the insertion

of different bumpers and other fixtures, while along one of its long edges there is a mounted splint to receive instruments such as bone mill or table-vice (Figure 3).

RESULTS

We use the sterilizable workbench for four years in the course of operations needing good grasping, shock absorption or high energy manoeuvres (*Figure 4.*). Not only is it easier for the surgeon and assistant, but also it assures a higher level of safety and more precise material work.

DISCUSSION

Interestingly, with innumerable highly sophisticated instruments provided in most theatres, such a basic piece of equipment like a heavy, shock resisting bench is still missing. That is the reason why we created our one.



Figure 4. Modelling of a structural allograft on the workbench

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Conflict of interest: The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. The workbench is not manufactured by any company nor will it be manufactured, therefore it is not available for sale and we do not have any intentions of manufacturing it.