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## Wheelchair seating —

Part 3:

### **Determination of static, impact and repetitive load strengths for postural support devices**

*Sièges de fauteuils roulants —*

*Partie 3: Détermination des efforts statiques, d'impact et cycliques pour les dispositifs de maintien de la posture*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16840-3 was prepared by Technical Committee ISO/TC 173, *Assistive products for persons with disability*, Subcommittee SC 1, *Wheelchairs*.

ISO 16840 consists of the following parts, under the general title *Wheelchair seating*:

- *Part 1: Vocabulary, reference axis convention and measures for body segments, posture and postural support surfaces*
- *Part 2: Determination of physical and mechanical characteristics of devices intended to manage tissue integrity — Seat cushions*
- *Part 3: Determination of static, impact and repetitive load strengths for postural support devices*

The following parts are under preparation:

- *Part 4: Seating systems for use in motor vehicles*
- *Part 5: Determination of pressure relief characteristics of seat cushions intended to manage tissue integrity*

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## Introduction

Postural support devices (PSD), constructed as additional components to wheelchair seating or as wheelchair seating in its own right, are widely available and used extensively by people with disabilities. The selection or prescription of the most appropriate PSD should be, where appropriate, partially dependent on knowledge of its ability to withstand static, impact and repeated loads. This part of ISO 16840 is intended to specify test methods to provide this information.

The tests involve mounting the PSD on rigid test fixtures to simulate mounting on a wheelchair. Forces are then applied to simulate static loads encountered during normal use. Impact and repeated loads are also applied to simulate normal usage. The rigid test fixture is utilized to provide a worst-case situation, which is repeatable and avoids destroying multiple wheelchairs during testing. There is no minimum performance requirement currently specified in this part of ISO 16840. Usually tests are performed at increasing force until one or more failures occur. Repeated load tests are performed at a specific force until one or more failures occur. It is not required to test beyond a noted number of cycles.