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LETTER TO THE EDITOR

To the Editor:

Wheelchair rider injuries: Causes and consequences for wheelchair design and selection by Ronald P. Gaal, BSME, PE; Nancy Rebholtz, BSME; Ralf D. Hotchkiss, ScD; and Peter F. Pfaelzer, PhD, PE on page 58 in your January 1997 issue, Vol. 34, No. 1 was interesting but, it seems to me, failed to address fundamental issues for manual wheelchair riders in the context of optimal wheelchair functioning; balancing "safety-adding" features against weight; and the (key) issue of accurate assessment and wheelchair fitting. My comments primarily relate to manual wheelchairs as opposed to powered, which is logical given my personal perspective.

I am a paraplegic ($L^1/_2$ incomplete) and have used a wheelchair for mobility for fourteen (14) years, since incurring my spinal cord injury (SCI). During this time I have fallen out of my chair on numerous occasions, fortunately without sustaining any serious injury (except to my pride!). Most of these falls have occurred as a result of carelessness or inattention - the same factors which cause ambulatory people to trip or fall.

Wheelchair design, in terms of front castor size, anti-tip roller bars, centre-of-balance adjustments, etc., should be customised according to the individual's disability/ability, for example all of these will vary significantly for a person with a SCI at $L^1/_2$ than for a person with a SCI at T6 and they will vary significantly again for a person with muscular dystrophy or multiple sclerosis.

It is my view that accurate assessment and fitting of wheelchairs is the critical factor in wheelchair safety and rider injuries.

Another important factor is the wheelchair skills of the individual - the ability to "back wheel balance" increases safety when negotiating steep terrain (particularly downhill) and curbs and steps. Poor wheelchair skills and inappropriate wheelchair assessment and fitting seem to me to be far more important factors in relation to rider safety and injuries than overall wheelchair design.

Wheelchair Dynamic Stability and the Role of Riding Surface (page 64) particularly fails to acknowledge standard wheelchair rider technique (back wheel balancing) for negotiating curbs and steep slopes. Current wheelchair design reflects the demands of consumers for the most functional wheelchair - lightweight but strong and maneuverable, and the need for manufacturers to minimise costs whilst meeting the individual and custom needs of their customers.

As with any other product, compromises are made in design to achieve optimal functioning and to meet individual needs.

In closing, my major criticism of the article is that it failed to adequately canvass qualitative data from wheelchair riders. I strongly recommend that any subsequent research, as proposed by the authors, pick up these issues and focus on wheelchair riders' perceptions and views. It is most important that "professionals" do not contribute to the imposition of restrictions on wheelchair design, in the name of safety, which ultimately reduce the independence and mobility of wheelchair riders.

Yours faithfully,

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