

Letter to the Editor

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In reply to Dr Anton Wernig

Thank you for the opportunity to respond to the comments made by Dr Anton Wernig regarding our recent publication.¹ It is true that the subjects in our prospective study did not, as a group, achieve the same degree of independent walking capability as reported in Wernig's retrospective studies, and it is important to identify the possible reasons for this discrepancy. It is our opinion that two of the main contributors to this apparent difference in 'effectiveness' of the therapy are differences in baseline subject characteristics and differences in training parameters.

In Wernig's 1995 paper² patients were selected based on the criteria of having some voluntary activity in lower limb muscles (ie ASIA C or D classification) and an ability, or a reasonable potential, to use canes or some other assistive device. These criteria describe a group of patients who were far more functional at the outset of training than our study sample, which included two participants with motor-complete lesions (ASIA B) and only three of the 14 participants could ambulate with an assistive device. Dr Wernig questions our use of the ASIA impairment scale to classify our patients – although we acknowledge its limitations, the ASIA scale is a standardized tool for classifying persons with SCI. The majority of our study participants (12 of 14) were classified as ASIA C, a broad category indicating 'some motor function is preserved below the neurological level, and the majority of key muscles below the neurological level have a muscle grade less than 3'.

With regard to training parameters, all of our subjects trained 3 times/week, for a total number of 144 sessions of Body-Weight-Supported-Treadmill-Training (BWSTT). Each training session consisted of a similar duration of training (usually 2–3 intervals of 10–15 min). The 3 times/week training frequency may not be ideal, but for a community-dwelling outpatient with significant transportation barriers, it is probably not feasible to expect adherence to a higher training frequency. It is difficult to compare our results to those of Wernig's studies in patients with chronic SCI, since the training duration for their chronic patients was not consistent (3–20 weeks) and the frequency of training was not reported.

Dr Wernig asks whether the authors of our study were trained appropriately according to the 'rules of spinal locomotion'. The lead author of our study (and three of the co-authors) attended the Laufband symposium and workshop held in Germany in 2000, hosted by Dr

Wernig, and our group has purchased the Laufband training manual and CD produced by Wernig's group. We modified the Wernig walking scale after careful consideration of its potential sensitivity in a prospective trial. Given the fact that there are as yet no best practice guidelines published in the literature on BWSTT, it is premature to assume that any slight deviation from previous practice is inappropriate.

A final question posed by Dr Wernig is whether training over firm ground was ever part of our study. The answer to that is no – the purpose of our study was to 'examine the effects of 12 months of thrice-weekly BWSTT on functional walking ability and perceived Quality of Life (QOL) in persons with chronic SCI, and to determine the maintenance of these training adaptations....'. It is our opinion that, although overground walking did not improve in all of our participants, the ability to tolerate greater durations and speeds of assisted treadmill walking (with less body-weight support) indicates improvement. We do not consider our subjects' post-training performance to be poor; in fact, the point made in the paper was that overground walking is not the only positive outcome to result from BWSTT. Our participants demonstrated improvements in subjective well-being, and in companion publications from the same study, we found improvements in muscle morphology,³ glucose tolerance⁴ and cardiovascular regulation.⁵ It is also important to point out that these improvements occurred in all subjects, regardless of ASIA classification or degree of improvement in functional walking. BWSTT certainly has the potential to improve ambulatory ability in a select subgroup of persons with SCI, but it should also be recognized for the role it plays in other health-related outcomes. These other benefits of BWSTT should not be under-rated, as cardiovascular disease and type II diabetes are prevalent secondary health complications in this population.

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References

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