

## Short Communications

### The misuse of technology: walking appliances for paraplegics

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Until recent times the role of technology and technological developments has been regarded as wholly beneficial to society. However in the past few years a number of voices have questioned this benevolent view of the effects of technology upon society [1,2]. This unease has percolated through to medicine and a number of books and articles have generally questioned the role of technology in medical science and its impact upon individuals. However, [3,4], as yet, these ideas have not been specifically applied to individual technological developments and their implications spelled out. This then is the purpose of this paper; to question the role of technology with regard to the development of walking appliances for paraplegics as outlined in an article printed recently in this journal. [5]

The assumptions behind the paper referred to above and the research project it describes stem from the view of technology as a benevolent and beneficial force. When this attitude is coupled with the notion that being in a wheelchair inevitably means immobility and that walking, however ineffectively, is preferable to propelling a wheelchair, than a number of inaccuracies, half-truths and misconceptions are put forward to justify the project at hand. The above mentioned paper contains a number of such inaccuracies, half-truths and misconceptions.

Inaccuracies first then; the statement that being in a wheelchair means that it is impossible to obtain exercise is certainly false. Anyone who has seen paraplegic athletes in action in either national or international competition could hardly subscribe to such a view. Also, many paraplegics work, shop, cook and clean for themselves and these activities require a not inconsiderable amount of physical exercise. What's more, some ambulant paraplegics actually take to their wheelchairs for exercise and training, as with certain members of the Great Britain basket ball team. Thus it is totally inaccurate to say that being in a wheelchair means that paraplegics are unable to obtain exercise.

With regard to half-truths, the article correctly lists a number of secondary afflictions that the paraplegic may suffer; circulatory and respiratory problems, muscular atrophy, skeletal deformity and impairment of bowel and kidney function. However, does standing for a few hours each day lessen these problems? No evidence is cited in support of this, and by evidence I mean controlled studies using two groups, one of whom stand regularly and one of whom who do not. Personal statements and beliefs, even if made by eminent consultants in spinal cord injury, do not constitute scientific evidence, and at a level of personal

reminiscence, I could name at least a dozen paraplegics who never stand but have never suffered any of the secondary afflictions listed above.

Finally, it is a misconception to imagine that being able to stand or walk a few steps will necessarily lessen the physical and psychological disadvantages of being in a wheelchair. Indeed, the available evidence regarding the psychological impact of disability suggests the very opposite [6,7]; that is, various studies have shown that it is not the unequivocally disabled people who experience the severest psychological problems but those who are in a marginal situation the visually handicapped rather than the blind, the partially rather than totally deaf and the ambulant paraplegic rather than the one permanently confined to a wheelchair. Thus, if this evidence is correct, and there is general agreement in the literature that it is, then it logically follows that by advising paraplegics to stand, their psychological problems are being compounded rather than alleviated.

The assumption that the walking appliance may also reduce some of the physical disadvantages of being confined to a wheelchair may also be a misconception. Let us take one example of physical disadvantage mentioned at the beginning of the article; the difficulties involved in entering many toilets or urinals. Later in the article we are told that those using the walking frame are unable to go to the toilet whilst wearing it. So, of what benefit is the walking frame in making an inaccessible toilet accessible? Let us imagine the situation where a paraplegic out in his wheelchair needs to go to the lavatory but finds the nearby public toilet inaccessible; he can then take out his walking appliance, assuming he has it with him, put it on, walk into the toilet, take it off, urinate, y put it on again, stagger back to his wheelchair and take it off D again. Surely such a complicated procedure, even if it could y be carried out, would add to, rather than reduce the physical disadvantages of the paraplegic.

So far I have argued that two assumptions form the basis for the research project under discussion; that technology is benevolent and beneficial and that it is better to walk than to wheel. These assumptions are precisely that, assumptions having little basis in fact. Consequently, justifications for the work being undertaken, the financial and intellectual resources being expended, are themselves based on inaccuracies, half-truths and misconceptions, some of which I have described above. What remains is to spell out the implications of this for both individuals and society.

Those individuals who choose not to take advantage of the technological developments are regarded as somehow inferior; the paraplegics who were not committed whole-heartedly to using the walking frame as effectively as possible were characterised as lacking will-power, drive and determination. However their lack of commitment to the aid may well be based on an intelligent assessment of the advantages and disadvantages inherent in using the frame. So amongst the paraplegic population generally, there may be some who choose not to stand or attempt to walk because they feel the disadvantages outweigh the advantages; many more choose not to stand because their busy lives do not afford them a few hours each day to accrue any benefits from standing. I would state categorically that very few refuse to stand because they lack will-power, drive or determination.

More importantly, projects like the walking frame concentrate technological developments on modifications of individuals rather than on modifications in the social environment. The solution to the problem of the inaccessible toilet lies not in providing the paraplegic with aids

which enable him to enter walking, but to modify the building so that he can get in his wheelchair. This is a far more acceptable solution in both personal and economic terms; viz. it is less traumatic for the individual and it is cheaper to provide one modified toilet rather than a hundred modified individuals.

In conclusion, this paper should not be read as a blanket condemnation of all technological developments, but a plea for technology in its place. That place is for environmental rather than individual modification and alteration. Indeed technology has proved ineffective and inefficient in modifying individuals and there is little evidence for great future advances. The 'Six Million Dollar' Man and the 'Bionic Woman', are not science fiction based on projected facts but modern day fairy tales. With specific reference to paraplegia, it could be argued that the only significant development this century was anti-technological; that is the decision by Sir Ludwig Guttmann to treat the paraplegic as he was – paralysed – and to cease attempts to repair or replace his damaged spinal cord by surgical (technological) intervention. Thus, it is my contention that technology should be used in the service of man rather than for the modification of man, and thereby, walking frames represent a step in the wrong direction, and a misapplication of technological developments.

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#### References

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