

TRANSFEMORAL AMPUTATION, QUALITY OF LIFE AND PROSTHETIC FUNCTION

Studies focusing on individuals with amputation due to reasons other than peripheral vascular disease, with socket and osseointegrated prostheses

Akademisk avhandling

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Avhandlingen baseras på följande delarbeten:

- I. Consequences of non-vascular trans-femoral amputation: a survey of quality of life, prosthetic use and problems.
K Hagberg, R Brånemark
Prosthet Orthot Int 2001, 25 (3), 186-194
- II. Questionnaire for Persons with a Transfemoral Amputation (Q-TFA): Initial validity and reliability of a new outcome measure.
K Hagberg, R Brånemark, O Hägg
J Rehabil Res Dev 2004, 41 (5) 695-706
- III. Physiological cost index (PCI) and walking performance in individuals with transfemoral prostheses compared to healthy controls.
K Hagberg, E Häggström, R Brånemark
Disability and Rehabilitation 2006 (in press)
- IV. Socket versus bone-anchored trans-femoral prostheses: Hip range of motion and sitting comfort.
K Hagberg, E Häggström, M Uden, R Brånemark
Prosthet Orthot Int 2005, 29 (2), 153-163
- V. Osseointegrated transfemoral amputation prostheses: Prospective results of general and condition-specific quality of life in 18 patients with 2-year follow-up.
K Hagberg, R Brånemark, B Gunterberg, B Rydevik
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Abstract

Background: Individuals who have undergone a transfemoral amputation (TFA) due to causes other than peripheral vascular disease (PVD) constitute a sub-group of all amputees. This group is usually of young age at the amputation. Conventionally, prosthetic suspension is achieved with a socket. Using the osseointegration method, prostheses can be attached directly to the bone (OI prostheses) without a socket.

Aim: The overall aim was to investigate the health-related quality of life (HRQL) and prosthetic function in persons with a unilateral TFA, due to causes other than PVD, with socket prostheses and OI prostheses.

Material, methods and results: General HRQL was assessed using the SF-36. For condition-specific HRQL, a new self-report questionnaire was constructed: the Questionnaire for Individuals with a Transfemoral Amputation (Q-TFA). It provides results for four scores (prosthetic use, prosthetic mobility, problems and global health) and adequate levels of validity and reliability were demonstrated (*Paper II*). Physical assessments included measurement of the energy cost using the Physiological Cost Index and hip range of motion (ROM).

The HRQL and prosthetic function are described for 97 persons (62% male, 38% female, mean age 48 years, mean time since amputation 22 years, cause: 55% trauma, 35% tumour, 10% other) (*Paper I*). The energy cost was investigated for 41 individuals with socket prostheses (*Paper III*), while hip ROM was investigated for 43 persons with socket prostheses and 20 with OI prostheses (*Paper IV*). Finally, prospective results at the two-year follow-up for the first 18 consecutive patients treated with an OI prosthesis within a clinical investigation are reported (*Paper V*).

For the study group (*Paper I*), the general HRQL was reduced compared with healthy norms. Daily use of the socket prosthesis was reported by 82%. A large number of subjective complaints reducing the HRQL were reported. The most common were heat/perspiration (72%) and sores/skin irritation (62%) with the socket. Further, 48% reported phantom limb pain, 47% back pain and 44% uncomfortable sitting with the prosthesis. The energy cost was increased by 77% compared with controls. The hip ROM was reduced with the socket prosthesis, while individuals with an OI prosthesis had no restriction in hip ROM. Prospective results for the treatment with OI prostheses revealed that 17/18 used the prosthesis and reported an increase in general physical HRQL and more prosthetic use, better prosthetic mobility, fewer problems and better global health at the two-year follow-up compared with the preoperative situation.

Conclusions: For persons with an established TFA, for reasons other than PVD, the general HRQL is lower than that of healthy norms and a considerable number of specific problems are perceived. The Q-TFA is a valid and reliable tool for assessments of this population. Treatment with OI prostheses represents a promising development in the rehabilitation of individuals with TFA who report improved general and condition-specific HRQL at the two-year follow-up.

Keywords: Artificial limb, Energy cost, Health-related quality of life, Lower limb amputation, Osseointegration, Prosthetics, Range of motion, SF-36, Transfemoral amputation

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