

PROVIDING LOWER PHYSICAL BARRIERS

An inclusive society¹ will promote social interaction of all of its inhabitants. Generally, ageing persons enjoy more free time that may be spent on social interaction in the direct living environment. This increases their quality-of-life and is easing life of fellow citizens by mutual help.

As a result of good public health and medical care, more persons grow old by surviving disability and accidents². However, full rehabilitation requires an adaptive coping attitude³. Since the latter declines with older age, a low compliance of rehabilitation exercises results and impairments become chronic. Then, regular physical barriers in the living environment become limiting factors for social interaction⁴ and lowering these with the tools of gerontechnology is complementary to rehabilitation exercise.

For the direct living-environment, both building-technology and urban-planning are offering technical solutions. In order of importance for health-impact (prevalence)⁵: (i) *Hearing disorders*: noise isolation and loudness absorption (ii) *Sight disorders*: high indoor-light intensity, large brightness and colour contrasts⁶; (iii) *Motor-control disorders*: accessibility for wheelchairs; zero-level slip-resistant floors, functional handrails and grips⁷, ADL-provisions; (iv) *Social security*: safe building entrance, domotics for alarm; (v) *Social isolation and anxiousness*: extended family living, meeting points, familiar architecture; (vi) *Osteoporosis*: sheltered sunny outdoor balcony or garden; (vii) *Declined metabolism*: stable warm indoor climate; shedded pathways; (viii) *Auto-immune disorders*: anti-allergic finishing in, well-ventilated indoor climate. A professional, individual advice is needed for rehabilitation exercise with a high level of compliance, improving certain housing-conditions, or both. As to the latter, a quick inventory of barriers in the dwelling⁸ is needed to choose between simple click-in provisions,

dwelling renewal or moving. Affordability of a higher building-quality is highly linked with options for mass-fabrication and flexibility of construction.

Despite remaining technical challenges, most technical principles are already present for providing housing without physical barriers for all inhabitants⁹.

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GERONTECHNOLOGY FOR THE EUROPEAN SILVER PAPER

Overall the European Silver Paper¹ is very comprehensive of current problems in geriatric medicine and research; however, the technological aids mentioned under 'Clinical care – Access to specialist geriatric care' do not cover the whole concept of gerontechnology¹.

As to the section 'Clinical care', a number of needs may be fulfilled with already available gerontechnologies. These include: (i) detection of *falls* in susceptible subjects through passive or body-worn devices, for instance, 'actimeters'², (ii) monitoring of *nocturnal wandering* in cognitively impaired subjects by passive systems³, (iii) alert for *fugues* in demented patients by passive alarm systems⁴, and (iv) *general alerts* to cope with risks of living alone, such as fire alerts, unconsciousness alerts (differentiating from absence), and reminders for forgetfulness in taking medicines⁵.

As to the section 'Health promotion and preventive action', the following ongoing research is relevant to improve the quality of life in old people: (i) *walking devices* for frail old people, (ii) training old people on the use of user-friendly *networks* to prevent boredom⁶, (iii) *ergonomic* furniture and home appliances to prevent home accidents and ADL support for coping with restrictions, and (iv) a *masters programme* in gerontechnology, started in Eindhoven, The Netherlands, which will increase the awareness of the subject among health professionals and also provide personnel trained for future research and development.

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