

## Chapter XXXVIII

# Art and Technology for Health

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### ABSTRACT

*The chapter describes the development of a prototype digital game which was designed to make players more aware of the health consequences of their behaviours. The emphasis was on enabling players to become more aware of the performance of their heart—but without setting them targets, prescribing fitness programmes, or in any other way making them feel that they were doing ‘work’ or ‘exercise’. A prototype developed principally by artists and designers rather than by health professionals, the game has so far only been evaluated informally, and no longitudinal studies have been undertaken. Nevertheless, some interesting issues have been raised. These include the use of digital gameplay as a potential means to modify attitudes and behaviours; the possible benefits of live feedback during use as distinct*

*from retrospective review of performance; and the success of this project in terms of multidisciplinary collaboration. Since few projects have been based on live heart-rate, the chapter also introduces some of the problems and the potential of exploiting this aspect of behaviour in digital play. First, two contexts are described: the crisis in health caused by widespread low levels of physical activity and the technological context in which the work was developed. An account of the innovative features of the project leads into a discussion of the issues arising.*

## THE PUBLIC HEALTH CONTEXT

Physical inactivity is now a well recognised problem which threatens society as a whole through the direct and indirect costs of obesity, and which also threatens the long-term happiness of the individual.

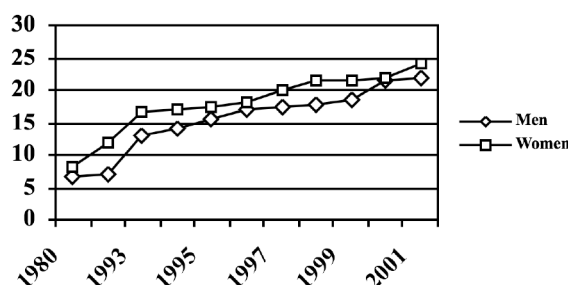
There is a growing tendency to obesity in the populations of developed countries. Figure 1 indicates the percentage of those in England classed as obese from the 1980s to the present decade: the figure roughly tripled in that period. It is common to blame diet, especially the consumption of fatty foods, for this increase, but it is the balance between energy consumption (from fats and carbohydrates) and energy expenditure (physical work, exercise and sport) which is crucial to the trend. Figure 2a-c indicate some components of the picture. In Figure 2a, overall energy consumption (and, in particular, fat con-

sumption) can be seen not to have increased since the 1970s – in fact to have declined. But when television viewing hours and car ownership are plotted as indices of inactivity (Figure 2b), there is an obvious similarity to the growth in obesity over the same period (Figure 2c).

Obesity reduces life expectancy by an average of nine years, and by much more in smokers (Crowther et al 2005:10). Though obesity is a direct cause of some health problems, it is almost more important as an indicator of a lack of physical activity. Someone may be slim, but still unhealthy, if the cause of their slimness is low energy consumption rather than high energy expenditure. It is known that there is a strong relationship between physical activity and several aspects of health. For some health problems, such as coronary heart disease, type-2 diabetes and osteoporosis, activity is far more beneficial as prevention than as cure (Dept. of Health. 2004). However, planned government programmes are not expected to achieve the necessary changes in behaviour (National Audit Office 2006: 49). Public health scientists consider it urgent that the public become more aware of the issues and how these relate to personal behaviours. A variety of strategies has been tried, but simple exhortations to live more healthily have had little effect.

The alternative approach that we wanted to try was to engage people with the interior world of their own bodies – specifically the performance of their heart – in a playful context and, in so doing, perhaps incite them to behave differently. The project, through the support of the Wellcome Trust, brought together a team across the boundaries of

*Figure 1. Trends in Obesity in England, 1980-2001 (Percentage of the population classed as obese). Office of National Statistics, Health and Safety Executive, various years*



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