

## Preventing osteoporosis, falls, and fractures among elderly people

*Promotion of lifelong physical activity is essential*

In recent decades the number and incidence of injuries caused by falls among older adults have increased dramatically throughout the world, and without any population level intervention the increasing trend is likely to continue—largely because of an increasing number of older people.<sup>1</sup> About two thirds of these injuries are bone fractures, the hip fracture being the most common, the most devastating, and the most expensive that our healthcare systems have to face.<sup>1</sup>

Regular exercise is probably the only method that may prevent osteoporotic fractures, the true end point of the entire osteoporosis problem, by preventing both osteoporosis and falls. The evidence seems stronger for exercise preventing osteoporosis. Human and animal studies have shown that physical activity can increase bone mass, density, and strength.<sup>2-3</sup> The starting age of activity is crucial: the benefit to bone is doubled if the activity is started before or at puberty rather than after it.<sup>3-4</sup> But bone tissue does also respond to exercise in adulthood, although this seems better at preserving bone than at adding new bone.<sup>5-7</sup> Nevertheless, the bone preserving action of exercise in adulthood may be important in maintaining bone strength and preventing osteoporotic fractures since only small percentages of bone mass and density preserved result in significant reductions in risk of fracture.<sup>8</sup>

The osteogenic effects of exercise are clearly site specific—that is, the effect is normally seen in only in loaded bone sites,<sup>3-4-7</sup> but the type, frequency, intensity, and duration of exercise that best produce the desired bone changes are not yet well determined. Current knowledge suggests that impact type exercise that creates versatile strain distributions throughout the bone structure can best improve bone strength.<sup>7</sup> Regular sports such as squash, tennis, aerobics, volleyball, basketball, gymnastics, or weight and power training may best fulfil these demands. In older adults brisk walking, climbing up and down stairs, dancing, and adult age gymnastics and calisthenics seem suitable.<sup>9-10</sup>

Exercise can also improve gait, balance, coordination, proprioception, reaction time, and muscle strength—even in very old and frail elderly people.<sup>5-7</sup> Despite this, its ability to decrease the risk of falling in general, or of injurious, fracture-inducing falling in particular, has remained questionable,<sup>11</sup> and when data from exercise trials in which an effect has been seen have been combined the average effect has usually been relatively small, 10-15%.<sup>9-12</sup> In interpreting these

results we should, however, remember that the type of exercise has varied considerably between trials and an optimal exercise programme may never have been implemented. In other words, the type of activity may not have been optimal in protecting against falling, and its frequency and intensity may have been insufficient to show any clear reduction in the frequency of falling in the intervention groups. In this respect it is interesting that in a recent randomised trial in women aged 80 and over (in which particular attention was paid to these aspects of exercise) strength and balance training reduced the rate of falling by more than 30%.<sup>13</sup>

Although the effect of exercise in preventing falls and fractures in elderly people has not yet been proved, epidemiological studies (case-control and prospective cohort follow up studies) consistently show that both past and current physical activity does protect against hip fracture, reducing the risk by up to 50%.<sup>9-10-14</sup> Many of these studies have even found a dose response relation between the amount of exercise and the risk of fracture. The best combination seems to be vigorous past activity and moderate recent activity (vigorous activity in old age may increase the predisposition to falling accidents).<sup>10</sup> Of various activity types, weight bearing activity seems most protective, and even daily walking and climbing stairs can be effective.<sup>9</sup> Only a few epidemiological studies have focused on physical activity and fractures other than hip fracture,<sup>9-15-16</sup> and the findings have been partly contradictory.

Overall, however, the evidence strongly suggests that regular physical activity, especially if started in childhood and adolescence, is the only cheap, safe, readily available, and largely acceptable way of both improving bone strength and reducing the propensity to fall. It should therefore become an essential part of strategies aiming at controlling the alarming increase in osteoporotic fractures. Moreover, of all the methods of fracture prevention regular physical activity is the only one that provides considerable other health related benefits.<sup>17</sup> For all these reasons, we must get both younger and older people moving.

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## Who should take responsibility for antisocial personality disorder?

*Fallon suggests emphasising custody, but psychiatrists' future role remains unclear*

The diagnostic boundaries and treatability of personality disorders have always been medically controversial. Whether offenders with antisocial<sup>1</sup> or dissocial<sup>2</sup> personality disorder—"a most elusive category [with] wavering confines"<sup>3</sup>—should be treated in hospital or punished in prison is profoundly controversial. Now, because of highly publicised cases of paedophilic violent offenders released from prison and the case of Michael Stone, a convicted psychopathic murderer, the medical response to personality disorder has become a subject of national political debate. The dispute between the home secretary<sup>4</sup> and the president of the Royal College of Psychiatrists<sup>5</sup> about whether psychiatrists should be preventively detaining untreatable psychopaths under the Mental Health Act illustrates well the field of political conflict.

Into this debate comes the Fallon inquiry into the personality disorder unit at Ashworth high security hospital.<sup>6</sup> This will soon be followed by the announcement of government policy on future services and legal provisions for personality disordered offenders, arising out of a Home Office-Department of Health working party that has been running in parallel with the inquiry. Fallon investigated and largely confirmed complaints of patients trading in pornographic material, a young child visiting convicted dangerous paedophiles and being "groomed" for abuse, patients running ward businesses, misuse of drugs and alcohol, and gross lapses in security. The report juxtaposes its general description of "the patients running the hospital" with the findings of "staff abuse of patients" by the 1992 Blom-Cooper inquiry into the same hospital,<sup>7</sup> nicely capturing the problem of integrating therapy and custody for a group of patients who are particularly adept at manipulation. The Fallon report found the personality disorder unit to be "a deeply flawed creation" but extended its recommendation of closure to the whole hospital, describing its management

culture as "dysfunctional ... secretive, out of touch and totally unable to control this large institution."

Although heavily criticising senior managers and clinicians alike, the report lays blame ultimately at the door of the management system, concluding "we have no confidence in the ability of Ashworth Hospital to flourish under any management." It makes two further recommendations about "the system."

Firstly, all high security services should be integrated into regional forensic and general mental health services. This is a widely and long held professional view to which the Department of Health is already committed: it intends regional commissioning of both high and medium secure services and the integration of Ashworth, Rampton, and Broadmoor special hospitals into general mental health trusts. However, the department has rejected both closure of Ashworth and the relocation of all high security services into smaller regional forensic networks (presumably because of cost).

Secondly, the Fallon report offers an interesting critique of the whole system of accountability within the NHS. In recommending the apparently politically uncontroversial notion that accountability, even in the absence of personal blameworthiness, should extend to the secretary of state, the report observes, by contrast, "We can recall no example of a minister resigning as a consequence of a failure in the NHS in all its 50 year history." This suggestion has implications which go far beyond Ashworth and forensic mental health services. It touches broadly on both accountability in the NHS and the relation between clinicians and their managers (likely to be subject to major change after the Bristol Royal Infirmary inquiry) and between politicians and NHS staff. Acceptance of Fallon's recommendation that there should be a direct line of accountability from health authorities to the NHS executive and, ultimately, to ministers would result in accountability for system failures being properly

News p 211 and  
Personal view p 271

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