nothing is abnormal. A specialised clinic for women with miscarriage may be the best place to offer this.[11]

Who should investigate couples with recurrent miscarriage? Although a thorough investigation will eventually require the expertise of an obstetric specialist, possibly working in a dedicated clinic, the karyotyping of both partners can, and should, be done by primary care physicians so that couples can take their karyotypes with them if they need further investigation or advice. When one partner is the carrier of a balanced translocation the couple should be referred to a clinical geneticist. Karyotyping in primary care will streamline the process. And it will be one small step towards the incorporation of genetics into mainstream medical services, one of the objectives of *Our Inheritance, Our Future—realising the potential of genetics in the NHS*, the UK Department of Health's white paper on genetics.[12]

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Video games and health

Video gaming is safe for most players and can be useful in health care

Although playing video games is one of the most popular leisure activities in the world, research into its effects on players, both positive and negative, is often trivialised. Some of this research deserves to be taken seriously, not least because video game playing has implications for health.[1]

One innovative application of video games in health care is their use in pain management. The degree of attention needed to play such a game can distract the player from the sensation of pain, a strategy that has been reported and evaluated among paediatric patients. One case study reported the use of a handheld video game to stop an 8 year old boy picking at his face. The child had neurodermatitis and scarring due to continual picking at his upper lip. Previous treatments had failed so the boy was given a hand held video game to keep his hands occupied. After two weeks the affected area had healed. Controlled studies using both randomised controlled trials and comparison with patient's own baseline measures show that video games can provide cognitive distraction for children during chemotherapy for cancer and treatment for sickle cell disease.[2–5] All these studies reported that distracted patients had less nausea and lower systolic blood pressure than controls (who were simply asked to rest) after treatment and needed fewer analgesics.

Video games have been used as a form of physiotherapy or occupational therapy in many different groups of people. Such games focus attention away from potential discomfort and, unlike more traditional therapeutic activities, they do not rely on passive movements and sometimes painful manipulation of the limbs. Video games have been used as a form of physiotherapy for arm injuries,[w1] in training the movements of a 13 year old child with Erb's palsy,[w2] and as a form of occupational therapy to increase hand strength.[w3] Therapeutic benefits have also been reported for a variety of adult populations including wheelchair users with spinal cord injuries,[6] people with severe burns,[7] and people with muscular dystrophy.[w4] Video games have also been used in comprehensive programmes to help develop social and spatial ability skills in children and adolescents with severe learning disability or other developmental problems, including autism[w5 w6]; children with multiple handicaps (for example severely limited acquisition of speech)[w7 w8]; and children with impulsive and attention deficit disorders.[w9]

However, there has been no long term follow-up and no robust randomised controlled trials of such interventions. Whether patients eventually tire of such games is also unclear. Furthermore, it is not known whether any distracting effect depends simply on concentrating on an interactive task or whether the content of games is also an important factor as there have been no controlled trials comparing video games with other distractors. Further research should examine factors within games such as novelty, users' preferences, and relative levels of challenge and should compare video games with other potentially distracting activities.

While playing video games has some benefits in certain clinical settings, a growing body of evidence highlighting the more negative aspects of play—

References w1-w28 are on bmj.com

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particularly on children and adolescents. These include the risk of video game addiction,[8 9] (although the prevalence of true addiction, rather than excessive use, is very low[8]) and increased aggressiveness.[10] There have been numerous case reports of other adverse medical and psychosocial effects. For instance, the risk of epileptic seizures while playing video games in photosensitive individuals with epilepsy is well established.[11 12w10 w11 w12] Graf et al report that seizures are most likely to occur during rapid scene changes and when games include patterns of highly intense repetition and flickering.[12] Seizures and excessive or addictive play do not seem to be linked directly, however, as occasional players seem to be just as susceptible.

Other case studies have reported adverse effects of playing video games, including auditory hallucinations,[w13] enuresis,[w14] encopresis,[w15] wrist pain,[w16] neck pain,[w17] elbow pain,[w18] tenosynovitis,[w19-w22] hand-arm vibration syndrome,[w23] repetitive strain injuries,[w24] peripheral neuropathy,[w25] and obesity.[w26-w28] Some of these adverse effects seem to be rare and many resolve when the patients no longer play the games. Furthermore, case reports and case series cannot provide firm evidence of cause and effect or rule out other confounding factors.

On balance, given that video game playing is highly prevalent among children and adolescents in industrialised countries, there is little evidence that moderate frequency of play has serious acute adverse effects from moderate play. Adverse effects, when they occur, tend to be relatively minor and temporary, resolving spontaneously with decreased frequency of play. More evidence is needed on excessive play and on defining what constitutes excess in the first place. There should also be long term studies of the course of video game addiction.

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Secondary prevention of falls and osteoporotic fractures in older people

A comprehensive integrated service is still some way off in the UK

Falls and osteoporotic fractures are a major public health challenge for countries with ageing populations. In the United Kingdom, approximately 30% of people over 65 years and 50% over 80 years will fall in a given year.[1] In addition to the morbidity and mortality associated with the injuries they cause, falls are a principal reason for emergency attendance at hospital, hospital bed utilisation, and transfer to nursing home care.

Systematic underestimation of the problem results from the lack of an ICD (international classification of diseases) diagnostic code for falls in older people (which are classified instead as "senility") and the tunnel vision of health staff who fail to list falls as the underlying reason for presenting injury. Approximately 200 000 osteoporotic fractures occur each year in Britain, with most fractures of the hip and radius caused by falls.[2] Because of this strong association, the consensus view is that falls, osteoporosis, and fractures must be managed together. In practice, however, this is rarely the case.

This is frustrating, given the impressive evidence base for the effectiveness of the secondary prevention of falls and osteoporotic fractures in older people.[3–5] This has been acknowledged in recent clinical guidelines from the UK National Institute for Health and Clinical Excellence (NICE) on the prevention of falls (see box 1 on bmj.com) and on the secondary prevention of osteoporotic fractures in postmenopausal women (see box 2 on bmj.com).[6 7] Moreover, the national service framework for older people in England stipulates that "by 2005 all localities will have a comprehensive, integrated service for the prevention of falls and fractures."[8]

NICE recommended in its guidelines on falls that people need further investigation if they have two or more falls in one year, have an injury after a fall, or fall and also have gait instability. Such investigation could identify modifiable risk factors leading to tailored

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