## Vibration white finger and Dupuytren's contracture: are they related?

Sir,

This paper by Clarke and Thomas (*Occup. Med.* 1992; **42**: 155-8) has recently been brought to my attention. The authors pose a question in the title – whether or not the two conditions are related. They answered this question by concluding that their statistical analysis 'may indicate' an aetiological relationship.

I do not believe that this statistical analysis is sufficiently convincing to make such a conclusion. The authors state that they are dealing primarily with an Irish–Welsh population who would be of Celtic stock and therefore the incidence of Dupuytren's contracture would be very high. Table 2 of their paper shows that 13.6 per cent of their group had Dupuytren's contracture. This is not surprising and in fact one would expect a prevalence somewhat higher than this.

Both hand–arm vibration and Dupuytren's contracture are difficult to diagnose in the early stages of disease. In this series the authors did not detect a single case of Dupuytren's contracture in the age group from 25 to 44 which indicates that some patients were overlooked. The diagnostic accuracy of hand–arm vibration would be clearer in the later stages of disease. For instance, as shown in their Table 3, 346 subjects had hand–arm vibration from stages 2 to 4. In this group only 37 subjects had Dupuytren's disease (as indicated in Table 4) for a prevalence of 10.7 per cent. Interestingly, this was the prevalence reported in their control group. Would it not be more appropriate to design a control group who work in the same industries as the subjects, but without hand–arm vibration? With a statistical analysis of numbers of this size, one would hope for a $P$ value certainly less than 0.01 and perhaps closer to 0.001.

The problem with this and many other epidemiological studies is that we do not understand the fundamental pathological process. It is clear that Dupuytren's contracture is a genetic disease of variable penetrance. Individuals of Celtic extraction have an increased penetrance. Associated diseases such as epilepsy, diabetes mellitus and alcoholism increase both the incidence and severity of the disease. It has been suggested that smoking and even AIDS may be a factor in increasing the incidence. To date there is no concrete evidence that relates Dupuytren's contracture to manual labour or hand–arm vibration.

This is a study that should be continued, perhaps with the addition of an epidemiologist and a statistician, but also a surgeon who is experienced in the diagnosis of Dupuytren's disease.

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## Reply

Sir,

We are grateful for the opportunity to reply to the letter from Dr McFarlane whom we thank for his interest in and comments about our paper. We agree that a satisfactory control group is crucial, especially as the medico-legal implications of an association between Dupuytren's contracture and vibration white finger (VWF) are important. The control group we used was from the same catchment area as the VWF subjects, and the vast majority had performed manual labour. As hospital-based clinicians our choice of control group was constrained, and we hope to co-operate in the future with local occupational physicians to study a larger group of men in the steel and chemical industries but who have not been exposed to vibration.

Our comment about the racial origin of our subjects was purely speculative, but is in accord with the theories of Murrell and Hueston[1] and would explain the higher prevalence we found compared to elsewhere in the UK. However, it would not explain the difference between the two groups. We do not believe that we overlooked any cases of Dupuytren's contracture in the age group 25–44 years, even though there were 137 subjects. The prevalence in this group has been found to be 1–3.3 per cent[2,3]. The diagnosis of Dupuytren's contracture is readily made on inspection and palpation although we accept that a single palmar nodule can be missed by the inexperienced. Finally, since our paper was published we have been contacted by two physicians also working in the North of England who have wide experience of VWF cases, and who are equally convinced of the association between the two conditions, but we await full analysis of their figures, and hence we agree with Dr McFarlane that studies should be continued to resolve the matter conclusively.

### REFERENCES

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3. Hueston JT. Further studies on the incidence of Dupuytren's contracture. *Med J Aust* 1962; **1**: 586.

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