Correspondence

Respiratory disability in ex-flax workers

SIR,—In a large retrospective study of ex-flax workers in Northern Ireland, (1986;43:300-6) Elwood and colleagues observed an excess of respiratory symptoms compared with control subjects; the excess was out of proportion to the reduction in lung function which was slight and, in the women, confined to the younger subjects. The older female ex-flax workers apparently had better lung function than the controls.

The findings were attributed on the one hand to the ex-flax workers exaggerating their symptoms with a view to compensation and on the other to a secular change in recruitment resulting from diversification of industry leading to greater job opportunities outside flax and to selective recruitment of less fit individuals into the industry. The authors provided limited support for the first of these hypotheses but none for the second.

An alternative is that the impairment of lung function was underestimated because of a high correlation (collinearity) between the primary variables (age and exposure) and their interaction term (age $\times$ exposure). Error on this account could lead to inaccurate estimation of the parameters of the regression equation.¹ The authors do not make clear that they have excluded error on this account but it would be helpful to do so in order to validate what is an important but at present speculative result.

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Reference

- 1 Gunst RF, Mason RL. *Regression analysis and its application: a data orientated approach*. New York, Basle: Marcel Dekker, 1980.

Dr Elwood replies:

Dr Cotes suggests that in our study of ex-flax workers in Northern Ireland we may have underestimated an effect of flax dust on lung function.

Far from underestimating the impairment of lung function due to exposure from flax, the methods we used to produce the results in table 3 of our paper are likely to have exaggerated the effect. As is clear from the table, exposure was simply coded as 0 for "never exposed" and 1 for "ever exposed" to flax. There is no "high correlation" between this variable and age. By

fitting an age-exposure interaction, the exposure term in the equation becomes the difference between ever exposed and never exposed at age zero. Since from figs 1 and 2 the two exposure lines are converging with increasing age, it is clear that the exposure term that we quote is the maximum possible, and also impossible, since it would assume that exposure started at birth. In the age range 40-47 the difference in fitted FEVs whether the interaction is included or not, is, as we state, minimal.

Vibration induced injury

SIR,—I wish to congratulate Dr Färkkilä on her editorial on vibration induced injury (1986;43:361-2) in which she makes clear that, although they often accompany the vascular phenomenon, the neurological abnormalities are not necessarily part of the vibration white finger disease (VWF). Her statement that the classification scales for vascular and neurological symptoms should be separated is an important one and her statement that autonomic and systemic symptoms should not be considered to result from vibration injuries should equally be applauded. VWF is a local spastic abnormality of the finger arteries and there is no need to propose a contribution from a central systemic sympathetic reflex. The evidence from plethysmography in the Kadlec-Pelnar modification is shown in the figure.¹ In fact, the appearance of a generalised systemic vasospastic reflex as a reaction to a localised cold stimulus points to an idiopathic Raynaud's disease not related to vibration, and against VWF.

Färkkilä's statements that the attack of white finger is "mediated as a central sympathetic reflex" and that "effects of vibration are transmitted through the higher autonomic centres" are not supported by objective plethysmographic evidence and appear to be in contrast with other statements.

Färkkilä regrets the lack of objective diagnostic tests for VWF. I suggest that the Kadlec-Pelnar plethysmographic examination has repeatedly proved to be an objective test of VWF with an acceptable degree of specificity and with practically no false positive results.

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Reference

- 1 Pelnar PV, Gibbs GW, Pathak BP. A pilot investigation of the vibration syndrome in forestry workers of Eastern Canada. In: