Dangers of lubricants used with condoms

SIR—Most condoms are used for contraceptive purposes. Recently, however, their use has been widely promoted to help limit the spread of sexually transmitted diseases, especially AIDS[1]. Many studies show that condoms are an effective barrier to the causative microorganisms[2].

It is widely held that petroleum- or oil-based lubricants such as baby oil, petroleum jelly or corn oil should not be used with latex condoms. Some manufacturers warn against such use on their packaging. Unable to find any published data to support this view, we tested major brands of latex condoms and samples of lubricants.

Each condom unpacked and exposed to oils at 37°C. After exposure, the tensile strength of the condoms suffered major, and often drastic, losses after a short period (see table).

Other physical properties — elongation at break, burst pressure and burst volume — showed a similar pattern, with reductions of up to 95% from initial values.

Clearly, users of latex condoms should not use additional lucricants that are petroleum- or vegetable-oil based, or else their condoms are very likely to fail. On the other hand, three water-based lubricant products we have tested, Duragel, Duracreme and Senselle, do not adversely affect the physical properties of condoms.

Mean percentage loss in tensile strength ($n=10$)

	'LUBRICANT'					
	Baby oil		Petroleum jelly		Corn oil	
	15 min	60 min	15 min	60 min	15 min	60 min
Durex (FRG)	92	91	70	69	74	68
Durex Elite (UK)	92	92	52	64	71	72
Lifestyles Nuda (UK)	73	77	51	61	64	73
Lifestyles Nuda (USA)	69	76	62	71	64	67
Mates (UK)	68	84	45	65	63	68
Ramses Extra (USA)	93	93	75	80	77	78
Trojan Extra (USA)	91	93	82	83	71	79
Duo (Netherlands)	91	90	55	63	55	80
Lifestyles Extra (UK)	76	84	35	53	39	65
Lifestyles Extra (USA)	76	84	41	67	65	70
Mates Tough (UK)	76	84	43	67	58	67

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1. Koop, C.E. *J. Am. med. Ass.* **256**, 2784–2789 (1986).
2. *J. Am. med. Ass.* **259**, 1925–1927 (1988).

Evolution of the early angiosperm groups

SIR—Chris Humphries (*Nature* **333**, 300-301; 1988) gives an interesting commentry on the phylogenetic classification of the angiosperm subclass Hamamelidae. He recognizes the role that the palaeontological record can play but states that the study of systematic patterns will probably be more significant for understanding the early evolution of this and other angiosperm groups.

In arguing this point, Humphries paraphrases comments that I made (*Nature* **331**, 304–305; 1988) about the nature of the fossil record of early angiosperms. In doing so, he unfortunately misrepresents me, presenting a view diametrically opposed to what I actually said. Rather than claim that the "processes by which angiosperms came to dominate low-land sediment-accumulating habitats are the most important for understanding angiosperm radiations," I said that floras from these habitats are the only ones well represented in the fossil record and for this reason palaeontological evidence alone cannot give a comprehensive picture of the radiation of the angiosperms. This was one of my main criticisms of Lidgard and Crane's analysis of the fossil record (*Nature* **331**, 344-346; 1988) which in my view was making wide-ranging claims about early angiosperm radiation that are not justified by the nature of the data.

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Image-processing packages

SIR—Kendall Preston (*Nature*, **333**, 611–612; 1988) makes the valid point that the number of different image-processing software packages, and the lack of standards in data format, have produced much extra work and programming for researchers. His final point concerns the problem of machine specificity, where image-processing packages are wedded to particular hardware. Here, I think, the article is misleading on current trends in image processing. The UNIX operating system and the C language are becoming very prevalent in the image-processing community, making it possible to create truly portable image-processing packages. Several are currently available, including the one I wrote and distribute, called HIPS (Landy, M.S., Cohen, Y. & Sperling, G. *Comp. Vision Graphics Image Process.* **25**, 331–347; 1984), which is used on many different machines.

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Latex gloves not enough to exclude viruses

SIR—We have examined latex gloves from four manufacturers using scanning electron microscopy and energy dispersive X-ray analysis. All of the gloves had pits 3–15 μm wide and up to 30 μm deep on both interior and exterior surfaces. Irregular particles (30–50 μm) containing silicon and magnesium were embedded in the latex deeply enough to cause pits themselves. Freeze-fractured sections of all gloves showed cavities throughout the matrix and tortuous channels (5 μm) penetrated the entire thickness of the glove (see figure). Despite a recent report that gloves exclude virus cultures (Dalgleish, A.G. & Malkousky, M. *Brit. J. surg.* **76**, 171–172; 1988), our findings suggest that double gloving, possibly supplemented by a surfactant/viricide, is a prudent expedient for those handling HIV or hepatitis B virus-infected material.

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Cross section through a latex glove (× 1,700) with the exterior surface on the left.