SCIENCE

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LETTERS

Human Gene Therapy Protocols: RAC Review

Much discussion has focused on the Recombinant DNA Advisory Committee (RAC) of the National Institutes of Health review of clinical protocols in human gene therapy. We believe the time has come for the RAC to end its protocol-by-protocol review. This would be consistent with the RAC tradition of developing guidelines for new technologies and then turning them over to local institutions or other regulatory agencies. This has been done with laboratory experiments with recombinant DNA, "voluntary compliance," large-scale applications, and environmental release, for example.

Therefore, instead of the present system in which the RAC has the option to review all gene therapy clinical protocols, we urge the RAC to more clearly and directly define its review process. We urge the RAC not to review Phase I follow-up studies. This is done by the Food and Drug Administration (FDA) for all clinical trials, including gene transfer. Second, we urge the RAC to define by inclusion, not exclusion, what it will review. The RAC should review those clinical protocols that use new vector systems, new disease targets, and new technologies. All other gene protocols should be reviewed exclusively by the FDA. This would, we believe, be responsive to the public, investigators, and the field.

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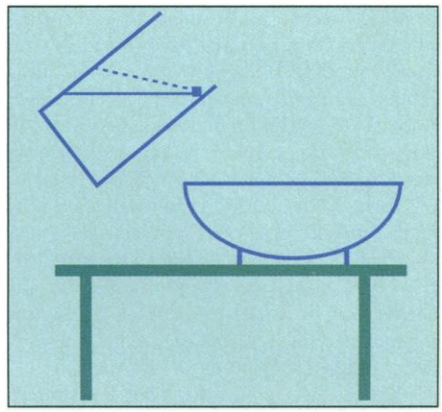
Accelerating Fluid

In the Random Samples item "Relative horizontality" (28 Apr., p. 503), it is reported that people who frequently move liquids rapidly in open containers (waitpersons and bartenders) seem not to appreciate that the static surface of a liquid is "horizontal."



Water level test. Acceleration could account for subjects' "error" (dotted line).

However, these people are paid not to spill the liquids, whose surfaces are often very near the rims of the containers. When one accelerates a liquid, its surface tends to be perpendicular to the effective gravity vector obtained by subtracting the acceleration vector from the ordinary downward gravity vector.

For example, a waitperson might accelerate a cup of coffee over its first meter of travel in 0.5 seconds, corresponding to an acceleration, $a = 2(\text{distance})/(\text{time})^2$, or 8 meters/(second)^2, which is nearly the pull of Earth's gravity ($g = 9.8$ meters/(second)^2. During this acceleration, the surface of the liquid would approach an angle, θ, where tangent $\theta = a/g = 8/9.8$, or $\theta = 39$ degrees.

To save his or her job, the waitperson would be well advised to tilt the cup during the initial acceleration, restoring it to the horizontal only during the steady walk to the table, and then giving it a reverse tilt as the cup is decelerated onto the table.

Thus, these workers might well respond to the psychologists' water level test by noting that in situations in which the surface of a liquid is not horizontal, the container has usually been tipped to keep the surface parallel to the rim.

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Hatching to Survive

The report by Karen Warkentin (*1*) of adaptive hatching of the eggs of red-eyed frogs when threatened by a predator (Random