(As particle falls in the fluid the velocity of the particle will change with distance traveled, that is the speed with which it falls. This will correlate with time also)
u = velocity of the particle at any instant of time t

x is the depth of the particle from the top of the medium in which it starts falling at any instant of time t

Table 3

Calculating velocities of given FB through Saline and PFCL

Body Falls Through Saline

ng that T ? 298 K $\rho = 1000 kg/m^3$

ature of the medium assumed to be that of normal ambient temperature that is 298 Kelvin and density is
d to be almost equal to that of water.

ting these values into equation 4, we get: - $\frac{du}{dt} = 8.4933 - C_D u^2$ (176.08)

D depends on u $C_D = \frac{24\ \mu}{\rho u} = \frac{1.95 \times 10^{-3}}{u}$

$\frac{du}{dt} = 8.499 - 0.343u$

ting the value of C_D found above into the differential equation we get the above first order linear equation.
ing the above equation we can find the velocity of the body after in the fluid as a function of time.
ling with the solution we get:-

$+ 0.343\ u = 8.499$

r. factor $= e^{\int 0.343\ dt} = e^{0.343\ t}$

$43\ t\ du + 0.343\ e^{0.343\ t} u dt = 8.499\ e^{0.343\ t} dt$

$0.343\ t\ u) = 8.499\ e^{0.343\ t} dt$

$43\ t\ u = 24.78\ e^{0.343\ t} + c$

ting the initial condition (at t=0, u=0) to get the integration constant, we get

$u = 24.78\ \frac{(e^{0.343\ t} - 1)}{e^{0.343\ t}}$

$u = \frac{dx}{dt}$ where x is the position of the body at any time instant t

$dx = 24.78 \times (1 - e^{-0.343\ t})\ dt$

$x = 24.78\ (t + \frac{e^{-0.343\ t}}{0.343}) + c_2$

tart t = 0, x = 0, we get

$x = 24.78\ (t + \frac{e^{-0.343\ t} - 1}{0.343})$

29% reduction in velocity offered by PFCL (Table 3).

Discussion

PFCLs are valuable and extremely useful tool for complex vitreoretinal procedures.1 They have simplified the management of giant retinal tears5 and posteriorly dislocated nucleus2 and intraocular lenses.3 Temporary tamponade provided due to their high specific gravity (1.76-2.03) has helped in reattaching retinal detachments with advanced proliferative vitreoretinopathy.4 Their usefulness in facilitating IOFB removal remains to be tested clinically. PFCLs can facilitate FB removal either by floating the FB off the retina or by acting as a cushion and thus preventing retinal injury in case FB drops while removing. Our study tested the clinical usefulness of perfluoro-n-octane in manipulating a series of foreign bodies that had been removed from the eyes of actual patients. Perfluoro-n-octane which is most widely used in our part of world and is the preferred PFCL was tested. We found that most (80%) of the IOFBs seen by us are magnetic iron FBs and their size and high specific gravity