

## **EFFECT OF REFLUX ON PERISTALTIC MOTION IN AN ASYMMETRIC CHANNEL WITH PARTIAL SLIP AND DIFFERENT WAVE FORMS**

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### **ABSTRACT**

In this paper, the partial slip effect and impact of different wave forms are discussed on the peristaltic flow of a Newtonian fluid in an asymmetric channel. The channel asymmetry is produced by choosing a peristaltic wave train on the wall with different amplitudes and phases. Mathematical analysis has been carried out for small Reynolds number and long wavelength. The solutions for stream function, axial velocity and pressure gradient are obtained. Numerical integration has been performed for the pumping, frictional forces, trapping and reflux phenomena. It is observed that the pumping against pressure rise, axial velocity, pressure gradient, size of the trapped bolus and reflux layer decrease with increasing the partial slip parameter. The size of the bolus symmetry disappears for large value of the partial slip parameter. Under certain conditions, there are boluses of fluid moving at the speed as if they were trapped by the wave. The comparison among the different wave forms (namely triangular, sinusoidal, trapezoidal and square) in the fluid flow indicates that the square wave yields largest flux.

**KEYWORDS:** Peristaltic Transport, Partial Slip, Pumping, Trapping, Reflux and Different Wave Forms