



Nasir Ali

**Peristaltic flows of some  
non-Newtonian fluids**  
Mathematical Modeling and Analysis



# Peristaltic Flows of Some Non-Newtonian Fluids

Nasir Ali



The peristaltic flow can be induced by the propagation of waves along the flexible walls of a channel/tube. Peristalsis is seen in the ureters which are tubular organs connecting the kidneys to the bladder. It is an automatic and vital process that moves food through the digestive tract, urine from the kidneys through the ureters into the bladder, bile from the gall bladder into the duodenum, ovum in the fallopian tube, lymph in the lymphatic vessel and so on. Technical roller and finger pumps also operate according to the principle of peristaltic transport. Due to diversity of fluids, several models have been suggested in the literature. The inadequacy of the theory of Newtonian fluids in predicting the behavior of some fluids, especially those of high molecular weight leads to the development of non-Newtonian fluid mechanics. The governing equations of non-Newtonian fluids are much more non-linear and higher order than the Navier-Stokes equations. The computations of such equations offer interesting challenges to the workers in the field. With these facts in mind we mainly propose here to study the peristaltic flows of non-Newtonian fluids.

- [Perfect New Forest](#)
- [Percussion Pop-Up](#)
- [The Perfect Fool](#)
- [Perfect Paleo Diet Cookbook Box Set : Paleo Diet Recipes: Breakfast, Lunch, Dinner and Smoothie Recipes](#)
- [Peribanez y El Comendador de Ocana](#)
- [Perfect Wedding Planner](#)
- [Percorsi verso la sostenibilita: principi, strumenti ed esperienze](#)