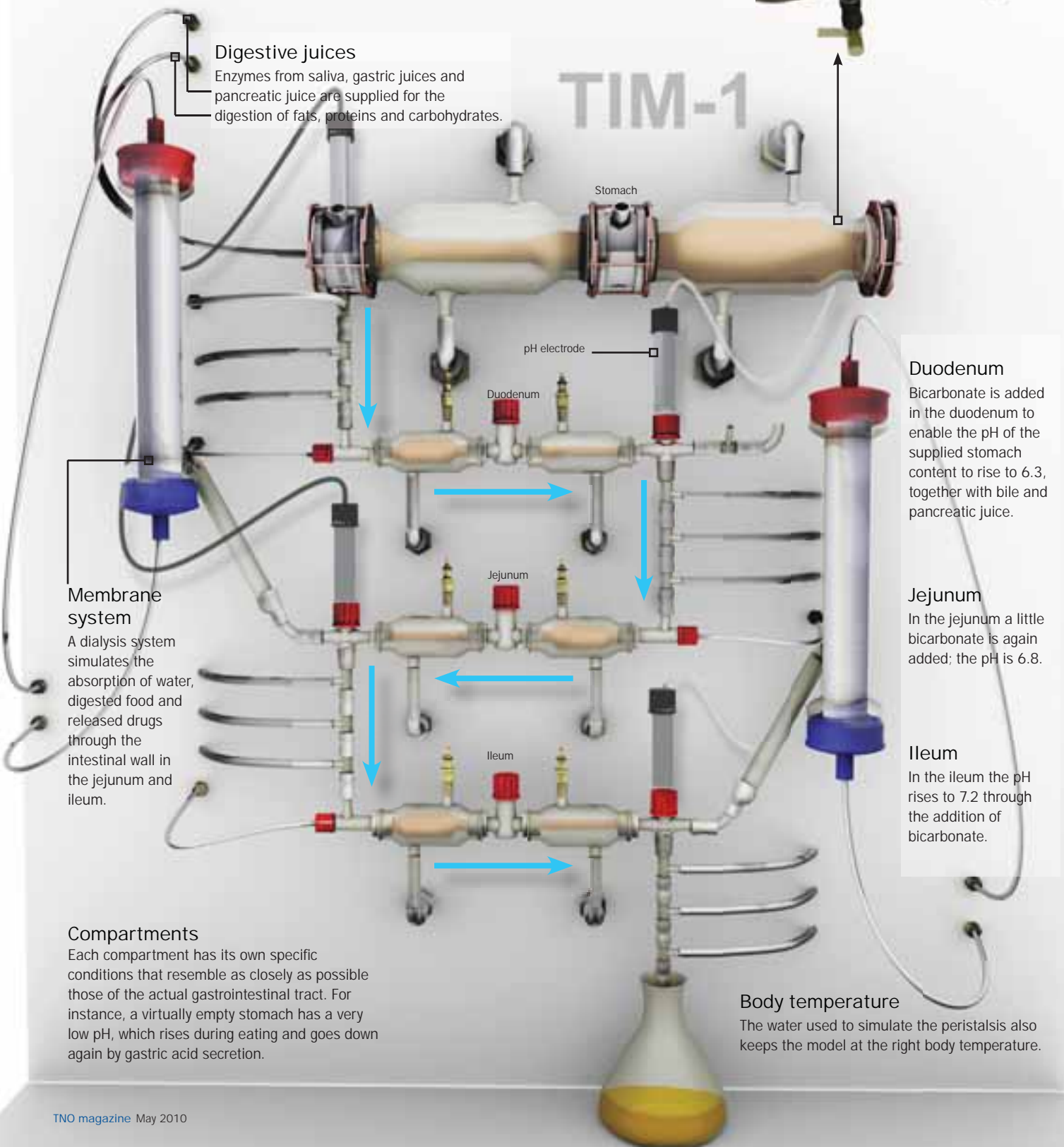


# Crystal-clear insight into the dynamics of the gastrointestinal tract

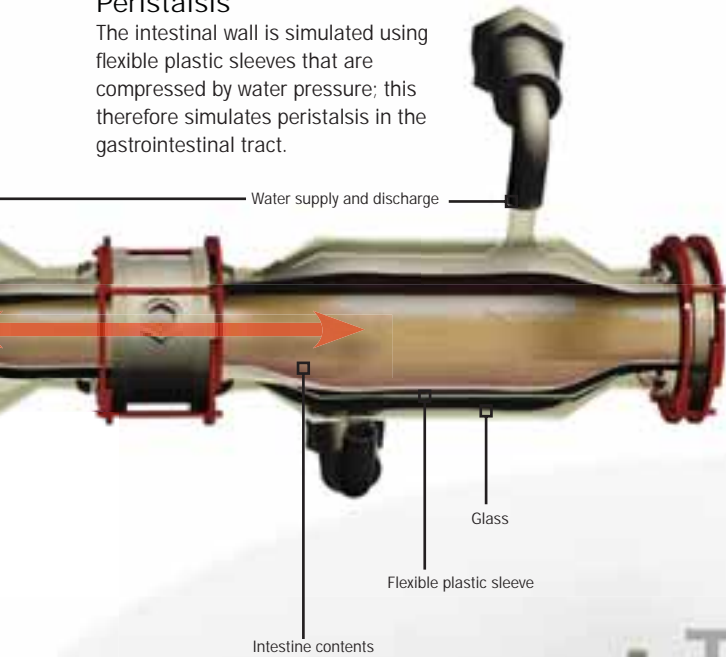
What is it exactly that goes on in the gastrointestinal tract when food is digested or medication swallowed? That's a question for TIM, the TNO gastro-Intestinal Model. There are two separate simulation models, one for the stomach and small intestine, TIM-1, and one for the large intestine or colon, TIM-2. These models simulate not only the action of enzymes and bile at body temperature but also the most eye-catching activity of the gastrointestinal tract: kneading and transporting food. This makes for a realistic model that can fairly easily be adapted for various research purposes, whether the digestive system of a baby or an adult or the release of a drug from a formulation. TIM-1 and TIM-2 are also suitable to simulate the gastrointestinal tract for other single stomach creatures like dogs.

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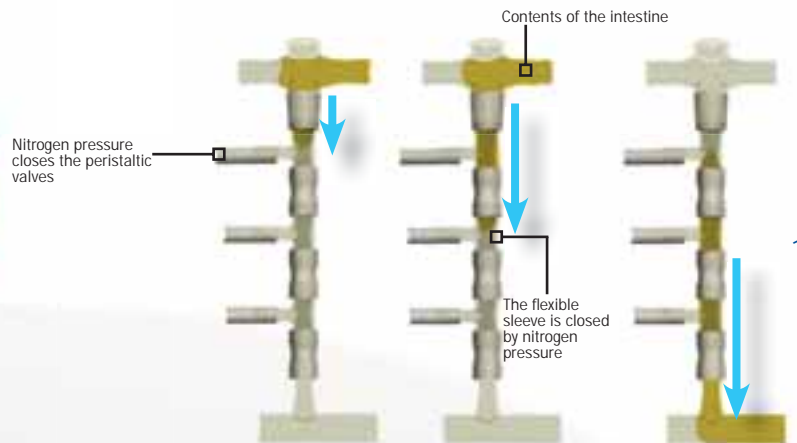
## Peristalsis

The intestinal wall is simulated using flexible plastic sleeves that are compressed by water pressure; this therefore simulates peristalsis in the gastrointestinal tract.



## Gastrointestinal transit

The contents of the stomach and intestine move in small portions through the model, just as they do in reality. This happens here through the vertically located peristaltic valves.



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## TIM-2

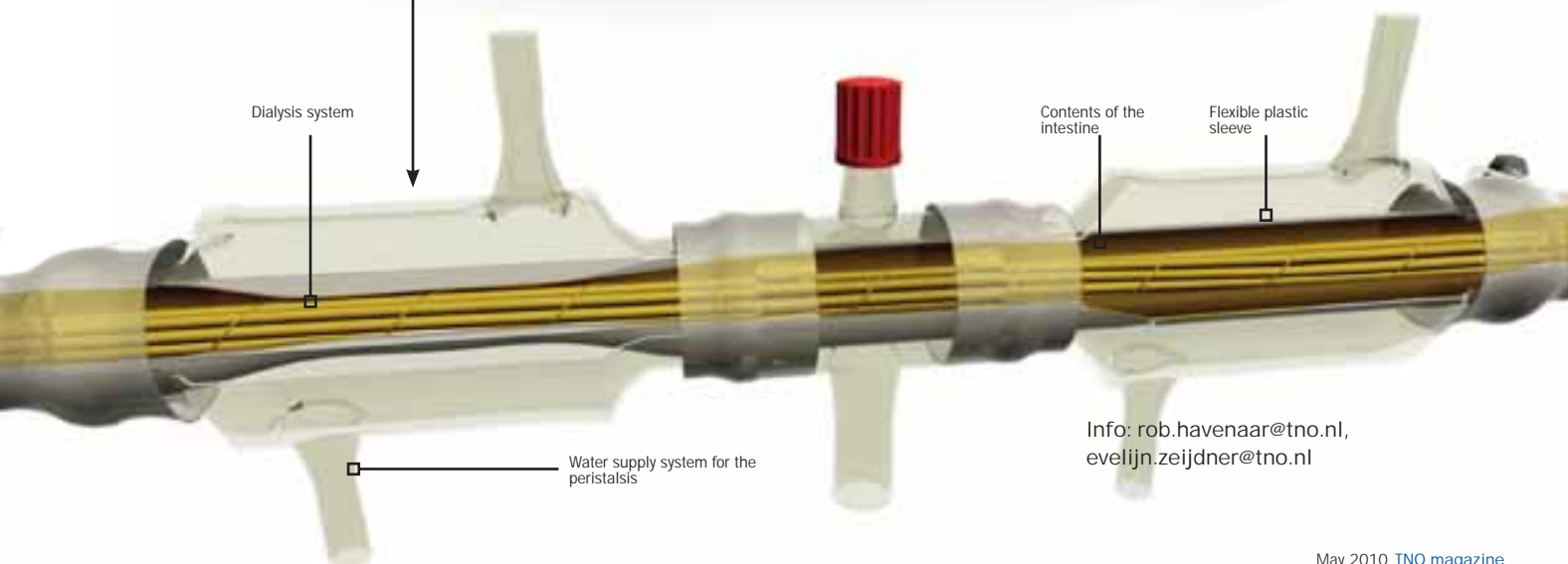
### TIM-2

TIM-2 is a closed system that simulates the action of the colon (large intestine). This system can be specifically adjusted for a particular target study group, and can incorporate the intestinal microflora of a child, an adult or even a dog.



## Dialysis

In TIM-2 there is also a dialysis system that simulates the absorption of water and molecules (as formed by the bacteria in the colon) by the intestinal wall of the colon.



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