

This study compares the performance of a prototype flow-controlled syringe pump both at start-up, and during vertical displacement manoeuvres, with that of a standard infusion syringe pump”
Batliner et al (2019).

Abstract:

Syringe infusion pumps are used for the administration of short-acting drugs in anaesthesia and critical care medicine, but are prone to flow irregularities at low flow rates. A flow-controlled syringe infusion pump using an integrated flow sensor for feedback control represents a new approach to overcoming these limitations. This study compares the performance of a prototype flow-controlled syringe pump both at start-up, and during vertical displacement manoeuvres, with that of a standard infusion syringe pump. The novel pump almost completely eliminated delays at start-up and flow irregularities during hydrostatic pressure changes. Related fluctuations in plasma drug concentration were minimised and the known disadvantages of standard syringe infusion pumps currently used in clinical practice were reduced. Besides providing fast start-up to steady-state flow and precise continuous drug delivery at low flow rates during hydrostatic pressure changes, the new pump offers the potential for the development of target-controlled infusion algorithms for short-acting cardiovascular and other drugs.

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Reference:

Batliner, M., Weiss, M., Dual, S.A., Grass, B., Meboldt, M. and Schmid Daners, M. (2019)

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