

Shunt test

Shunt testing independent of [manufacturers](#) provides knowledge that can significantly improve the management of patients with hydrocephalus. The Cambridge Shunt Evaluation Laboratory was created 20 years ago. Thanks to financial support from the Department of Health (1993-1998), all shunts in use in the UK were systematically evaluated, with "blue reports" being published. Later new devices were tested as they appeared in public domain. Twenty-six models have been evaluated. The majority of the valves had a non-physiologically low hydrodynamic resistance that may result in over-drainage, both related to posture and during nocturnal cerebral vasogenic waves. A long distal catheter increases the resistance of these valves by 100-200 %. Drainage through valves without a siphon-preventing mechanism is very sensitive to body posture. Shunts with siphon-preventing accessories offer a reasonable resistance to negative outlet pressure. Bench parameters were used to test shunt performance in vivo using infusion tests. A criterion for correctly performing a shunt procedure was established. Pressure measured in the shunt prechamber during the plateau phase of infusion should not remain more than 5 mmHg above the le shunt's operating pressure plus hydrodynamic resistance of the valve multiplied by the infusion rate. "Critical levels" for every shunt and every performance level have been used in the shunt testing wizard of ICM+ software ¹⁾.

¹⁾

Czosnyka Z, Czosnyka M, Pickard JD, Chari A. Who Needs a Revision? 20 Years of Cambridge Shunt Lab. Acta Neurochir Suppl. 2016;122:347-51. doi: 10.1007/978-3-319-22533-3_68. PubMed PMID: 27165934.

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Last update: **2024/06/07 02:56**

