

Mastering cataract surgery with Stellaris Elite

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Experts eye center

Financial disclosure

- Alcon speaker.
- BVI speaker.
- B&L speaker.

Phaco-machines fluidics system?

Pumps

- **Peristaltic pump.**

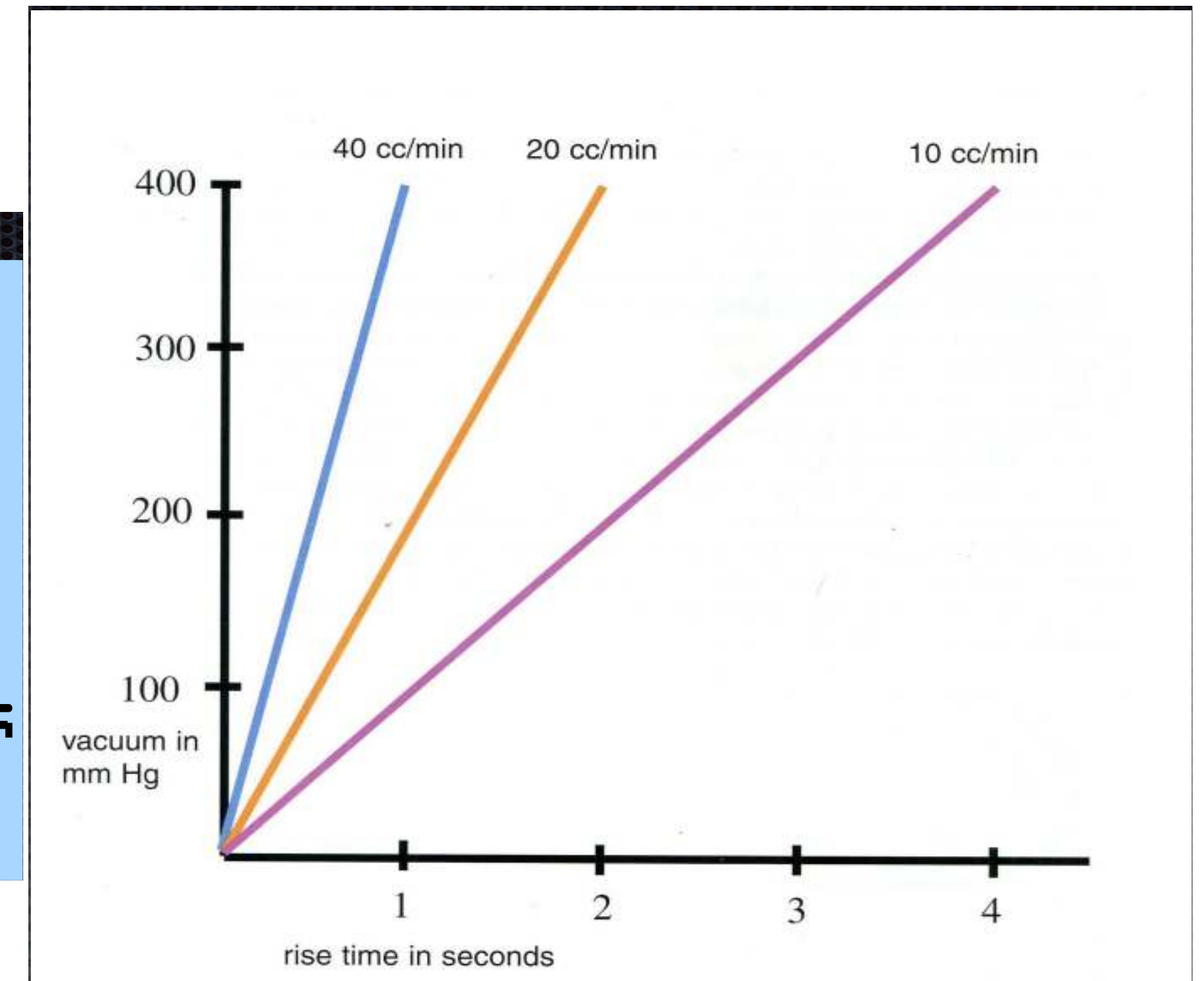
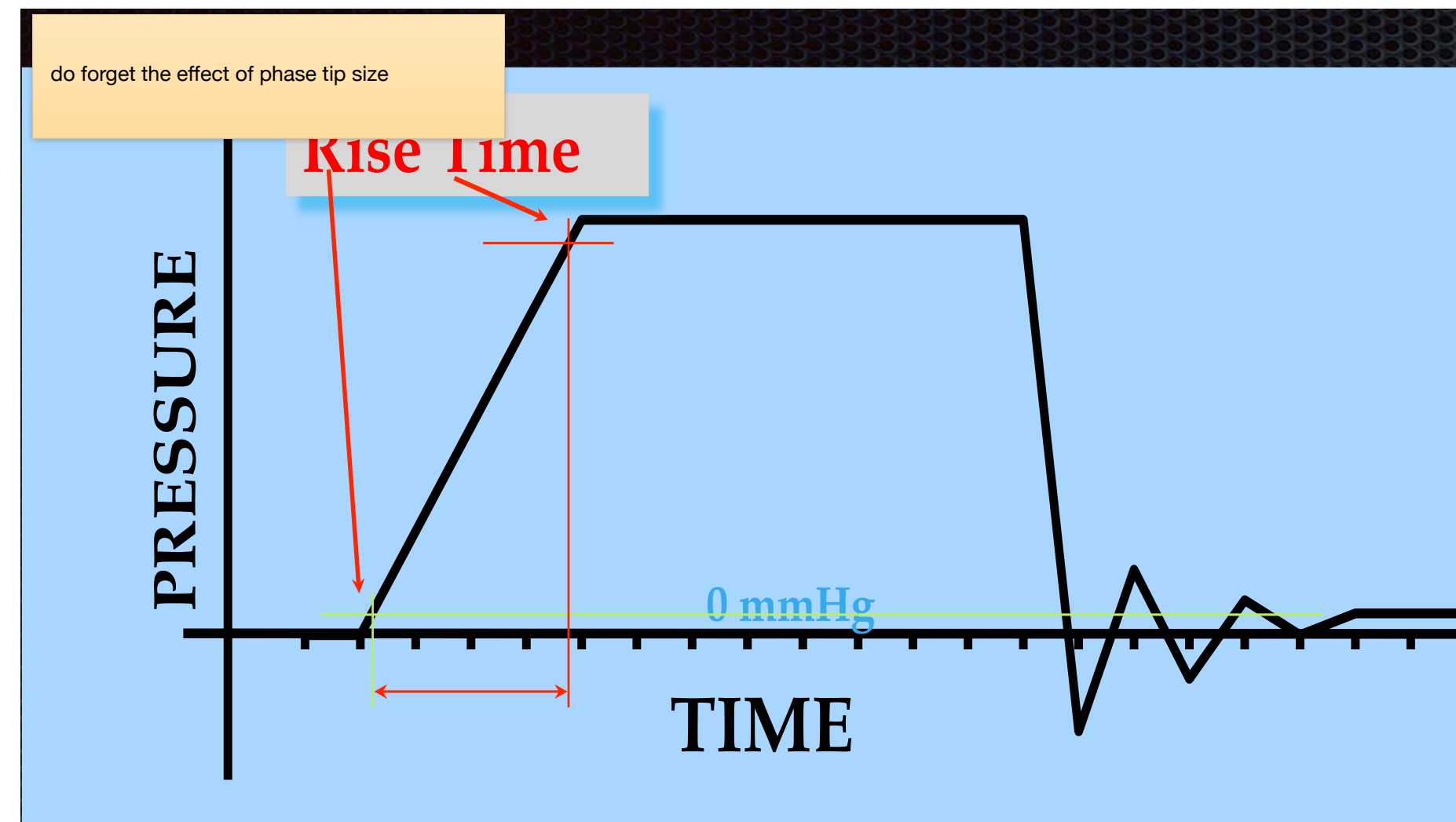
Flow rate and vacuum preset.

- **Venturi pump.**

Vacuum and rise time preset.

Rise Time(peristaltic based)

In seconds



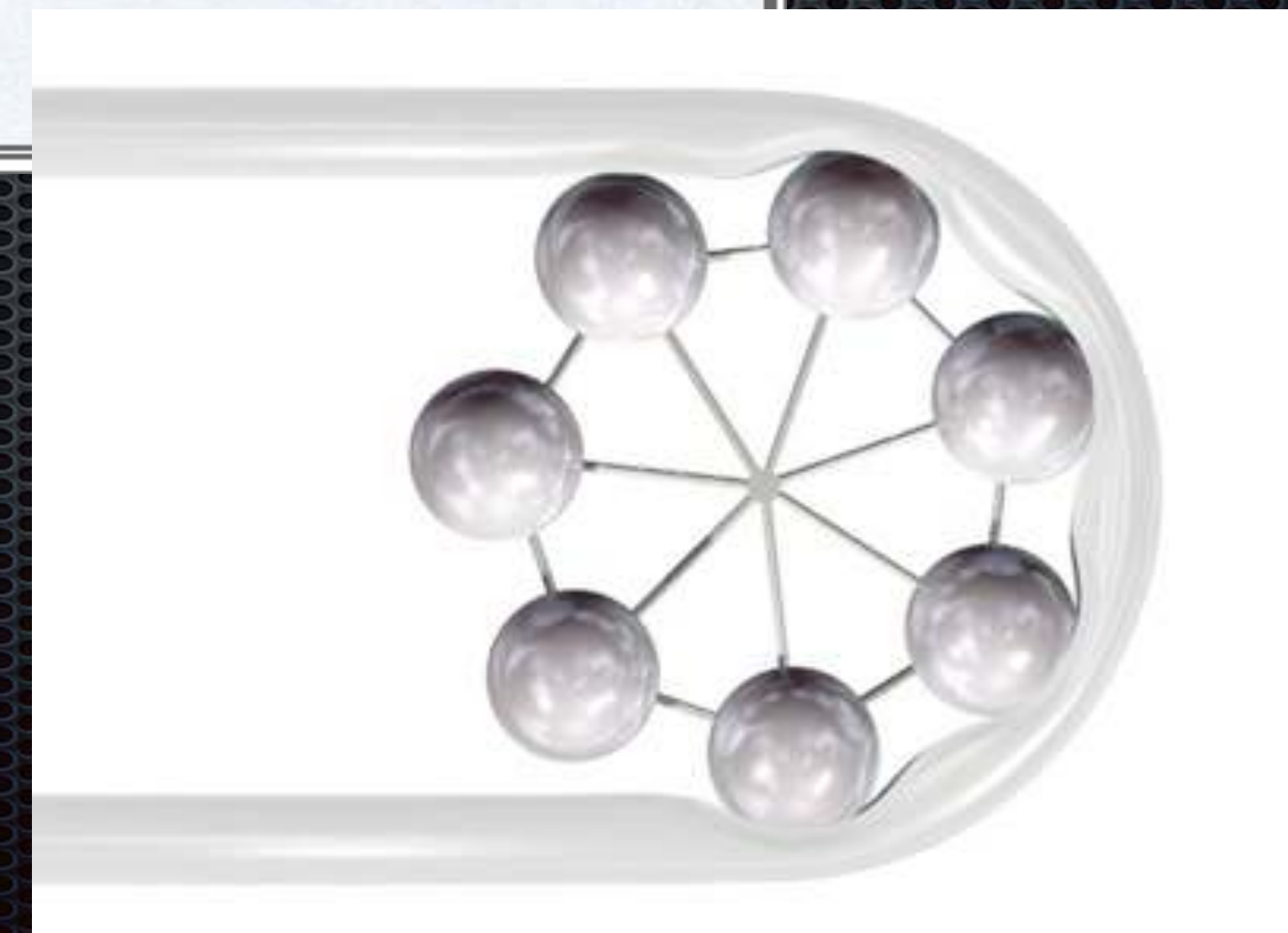
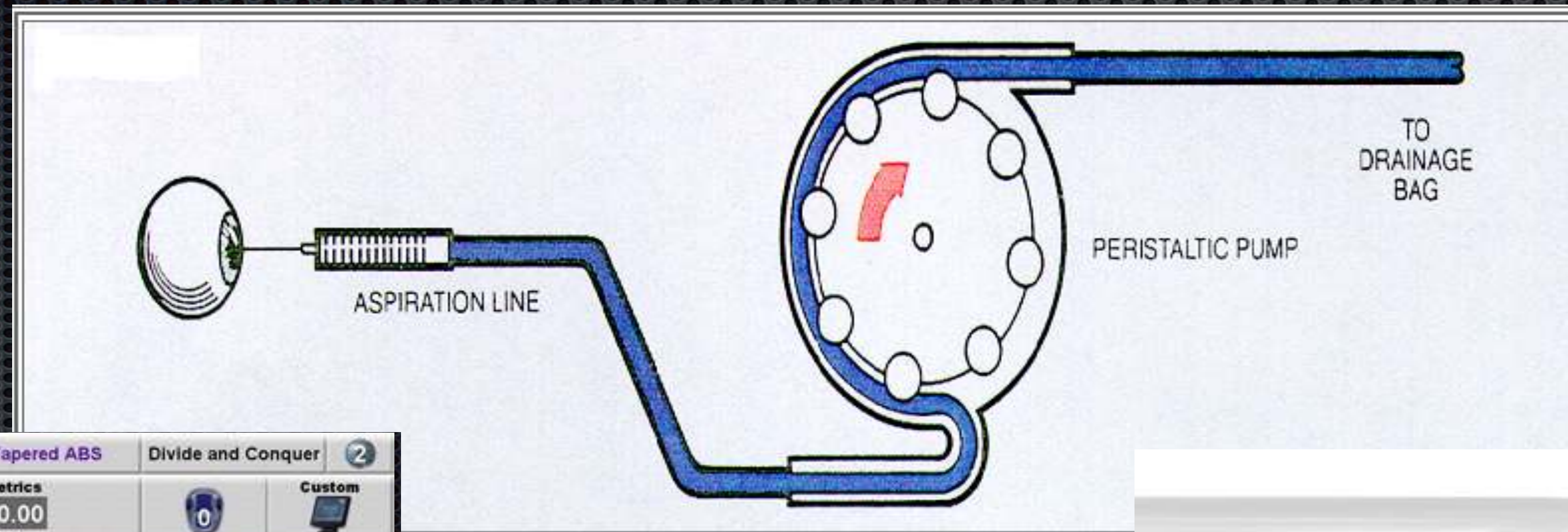
How fast vacuum build up to preset level

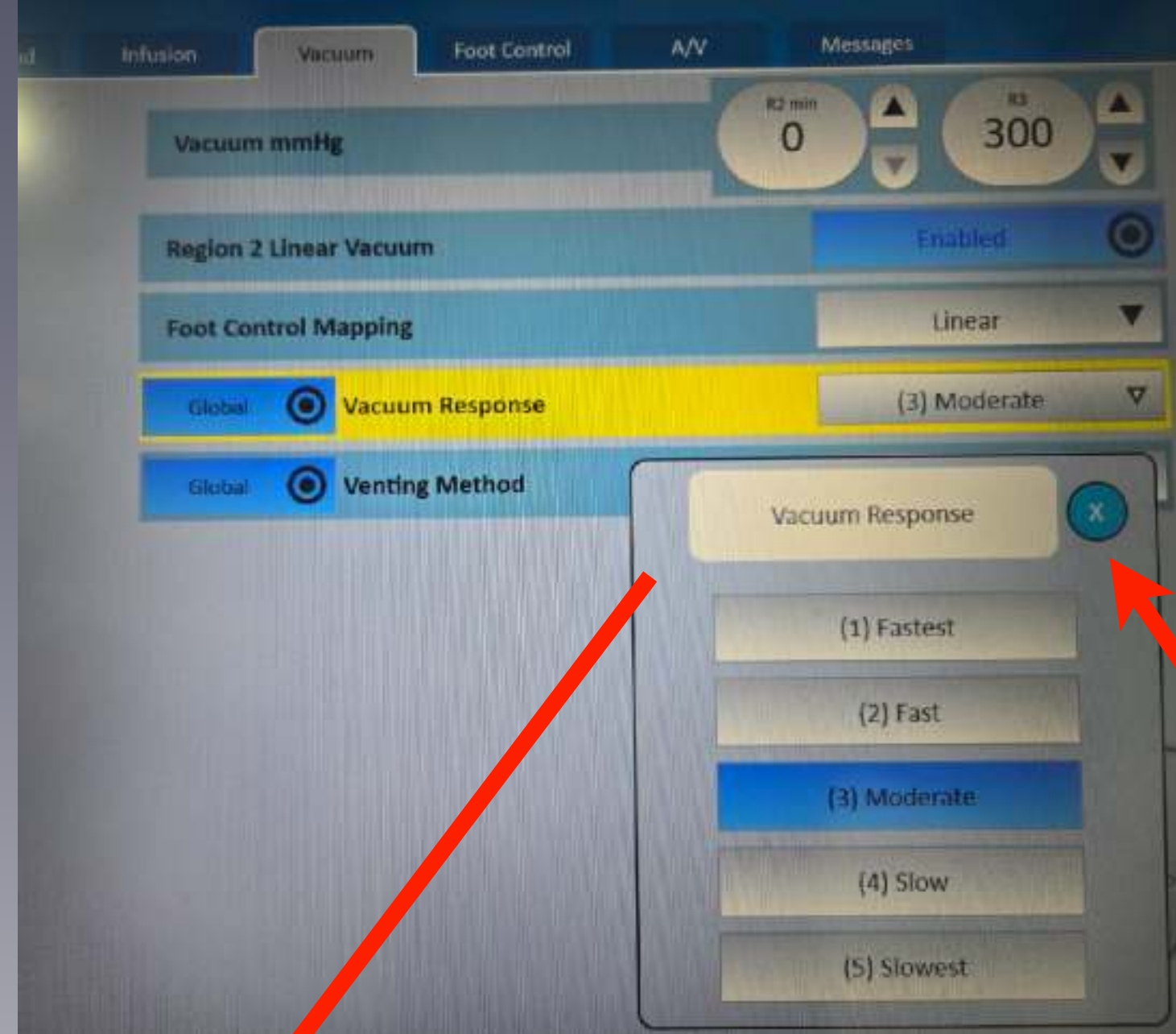
- The measurement of how fast vacuum builds up.
- Rise time is directly related to aspiration flow rate.
- The faster the aspiration flow rate the shorter the rise time.

In Venturi based systems the shorter the rise time
the faster the aspiration rate

Peristaltic Pump(FR based)

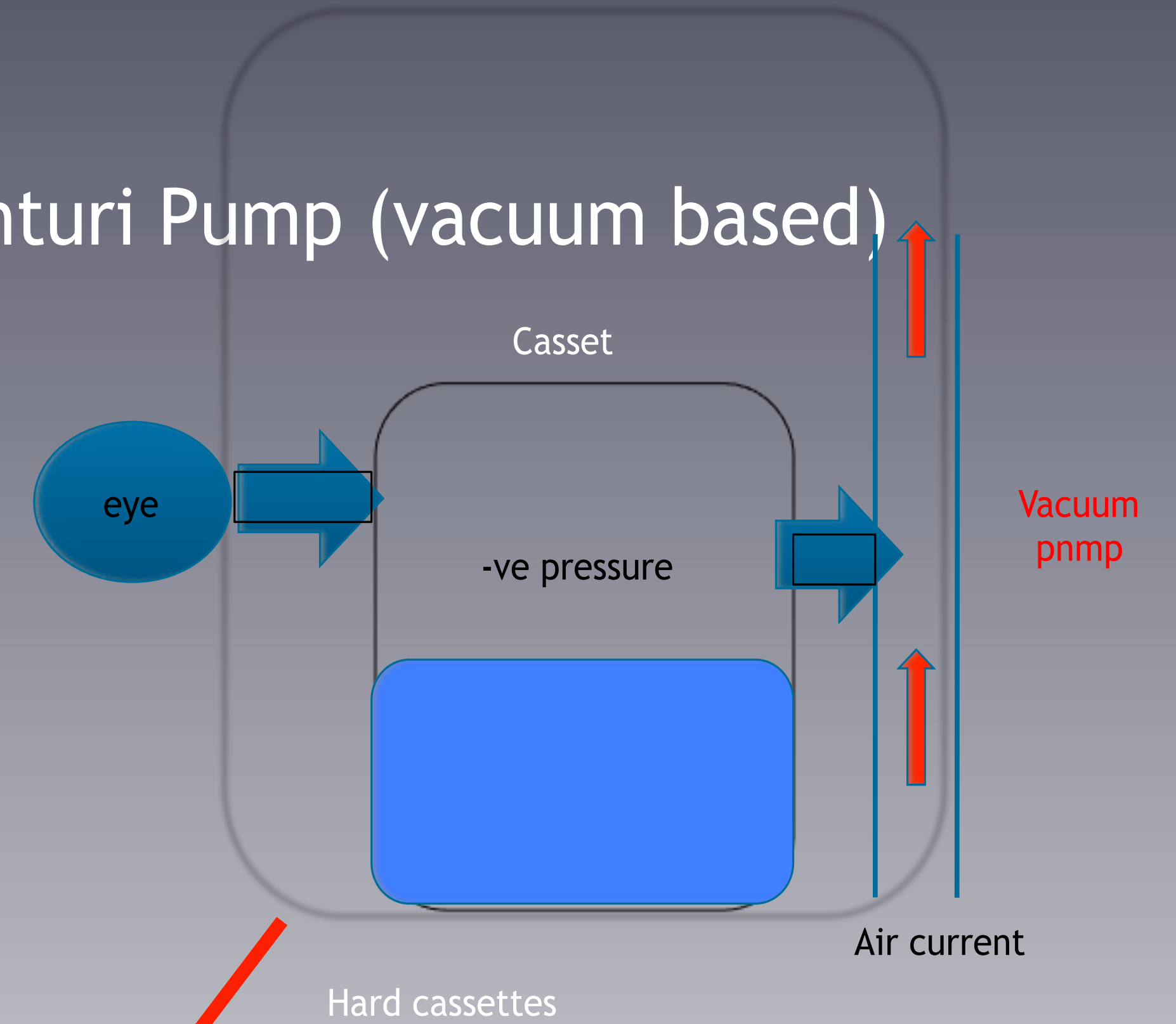
Tubing is compressed in a rotary motion by a series of rollers that have been placed around a wheel.





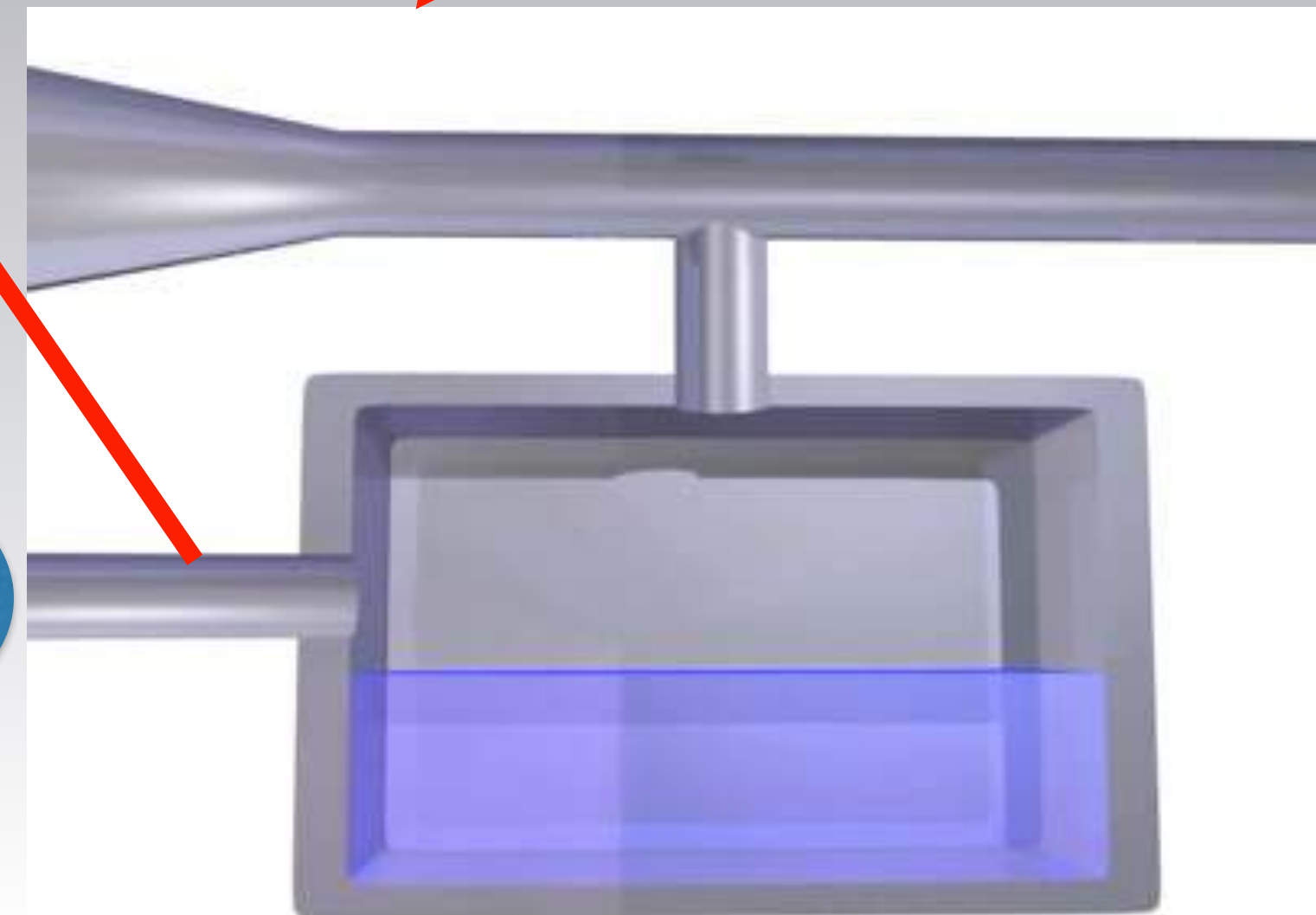
Fluid Aspiration speed

Venturi Pump (vacuum based)



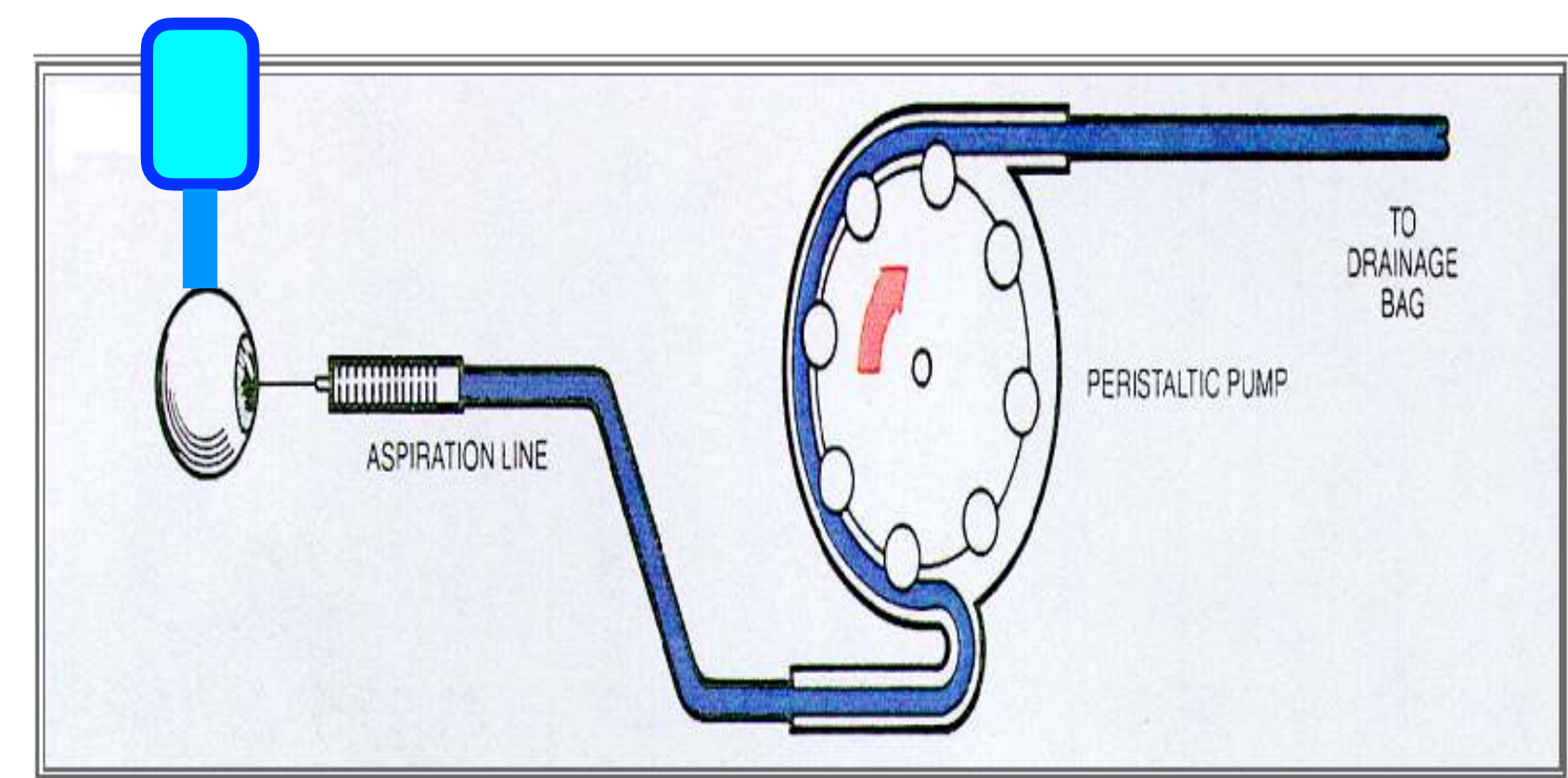
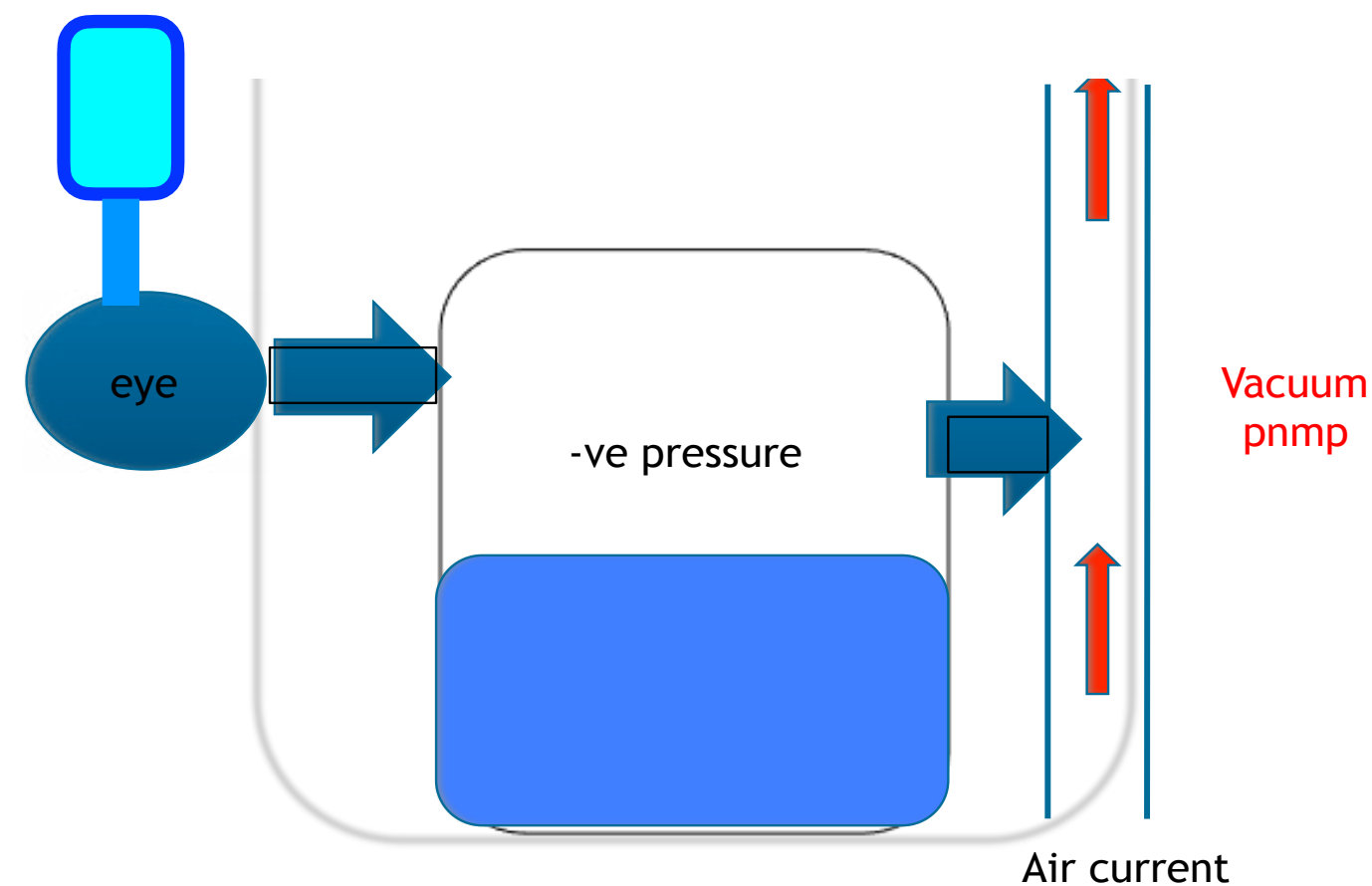
Eye

No FR adjustment



Vacuum and Flow pumps

- Vacuum pump FR is affected by bottle height as it is an open circuit from bottle to collection and only interrupted by occlusion. Increasing bottle height leads to increase in FR.
- This not the case in flow pump as the circuit is interrupted by the pump itself. So elevation of the bottle does not affect the FR level. And will increase IOP.



Vacuum and Flow pumps

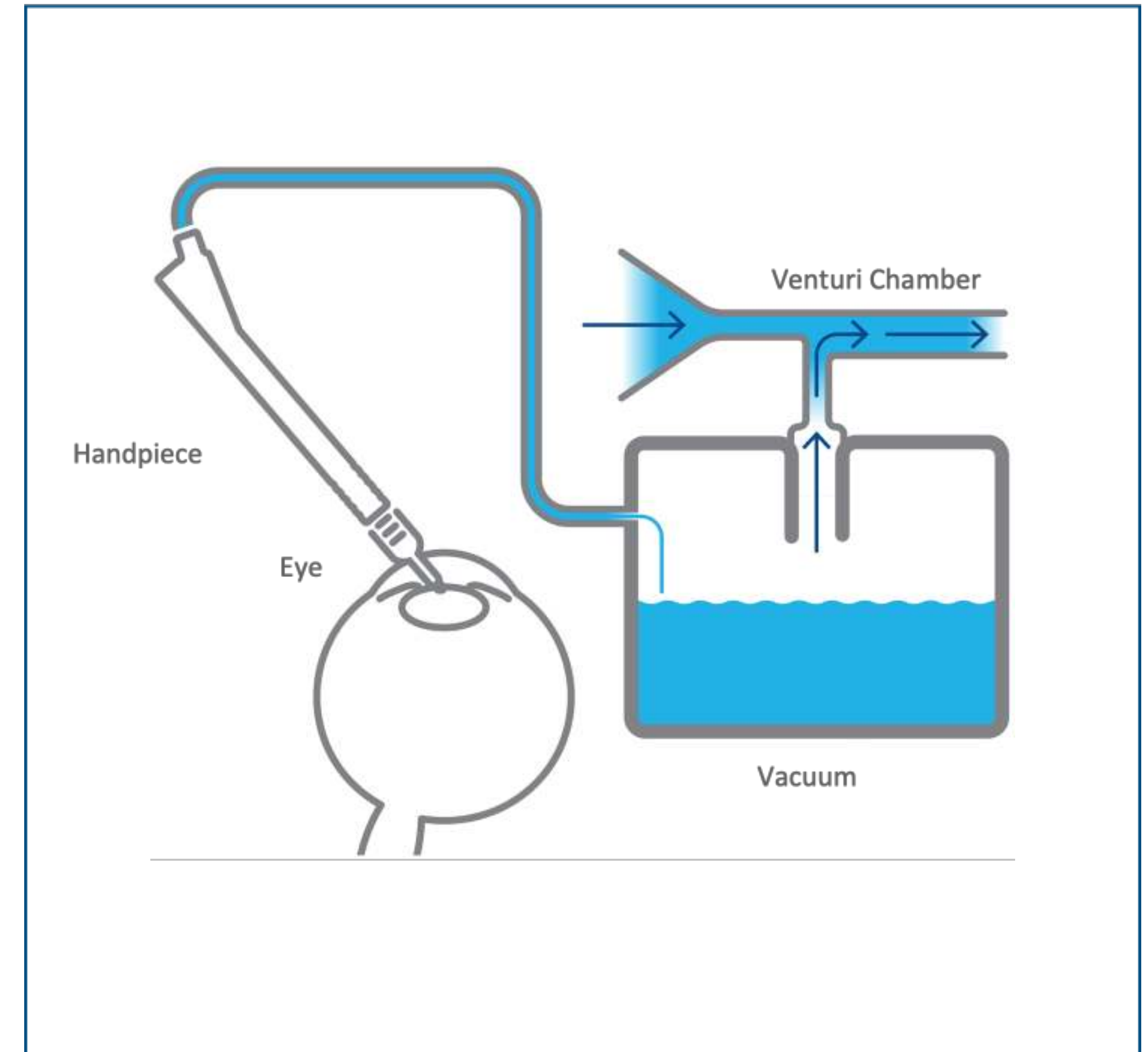
- Both require complete occlusion of the aspiration port to build up vacuume inside the aspiration line to the maximum preset level.



Phaco-surgeons and Venturi system.

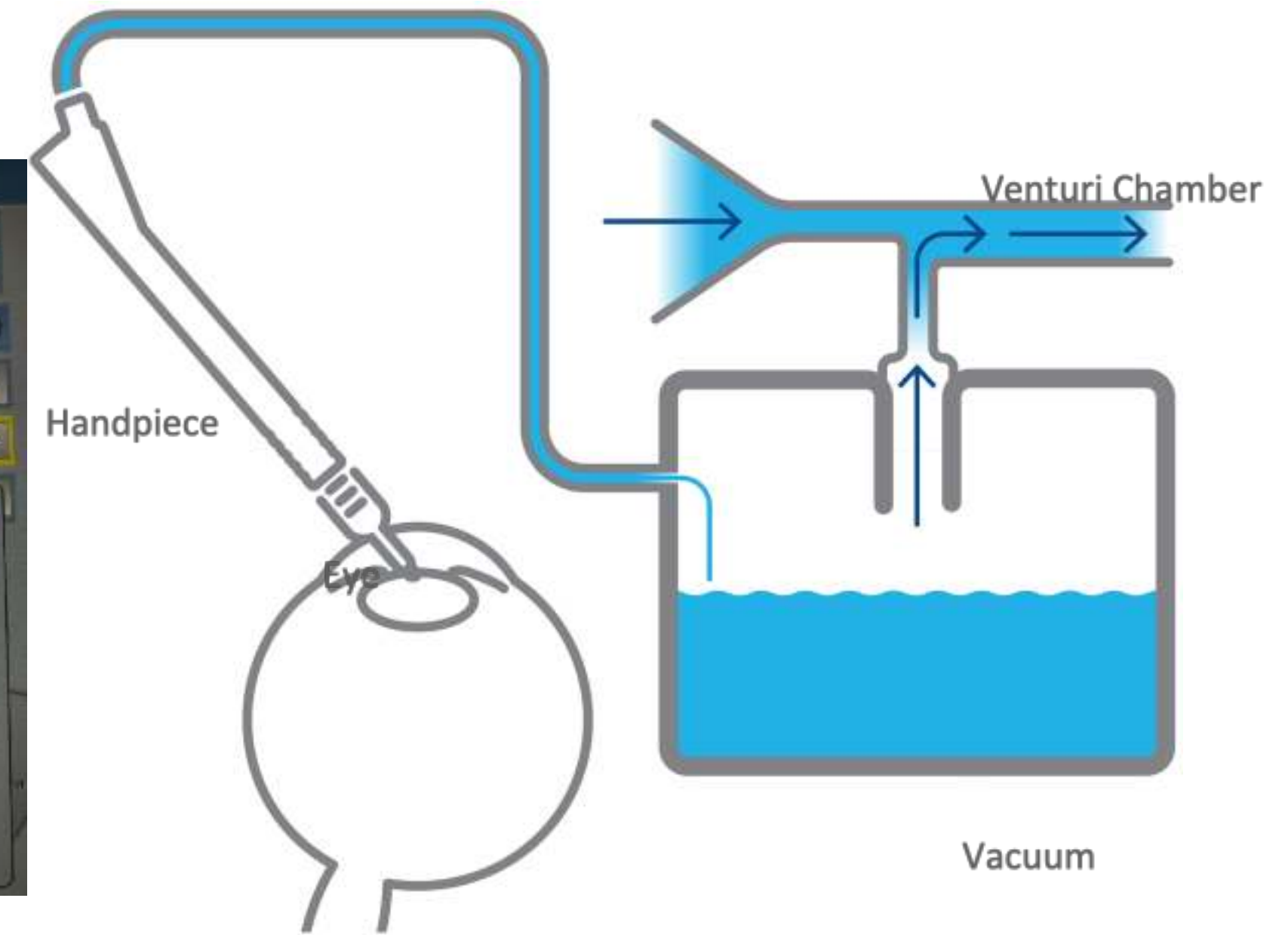
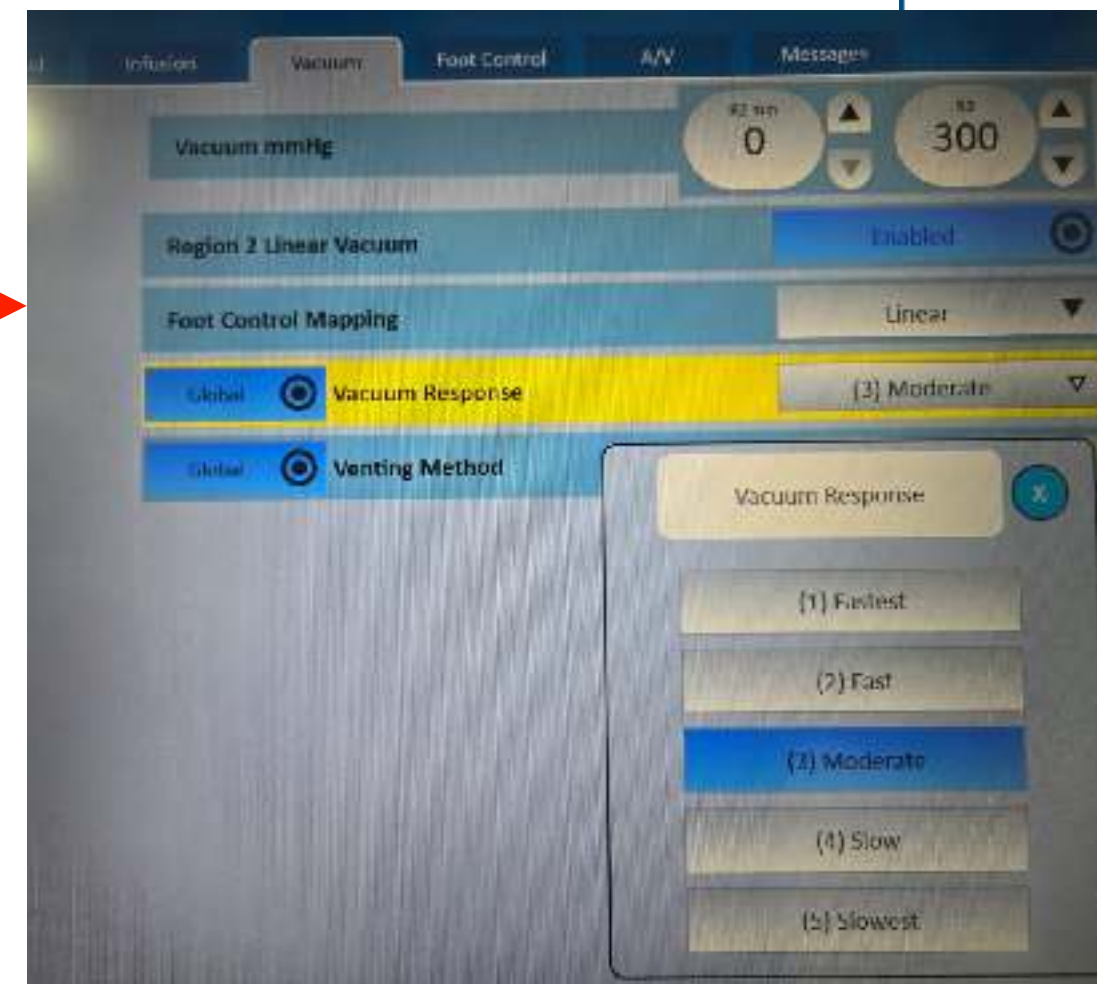
Concerns?

- Faster surgery.
- Unstable AC.
- PCR incidence.

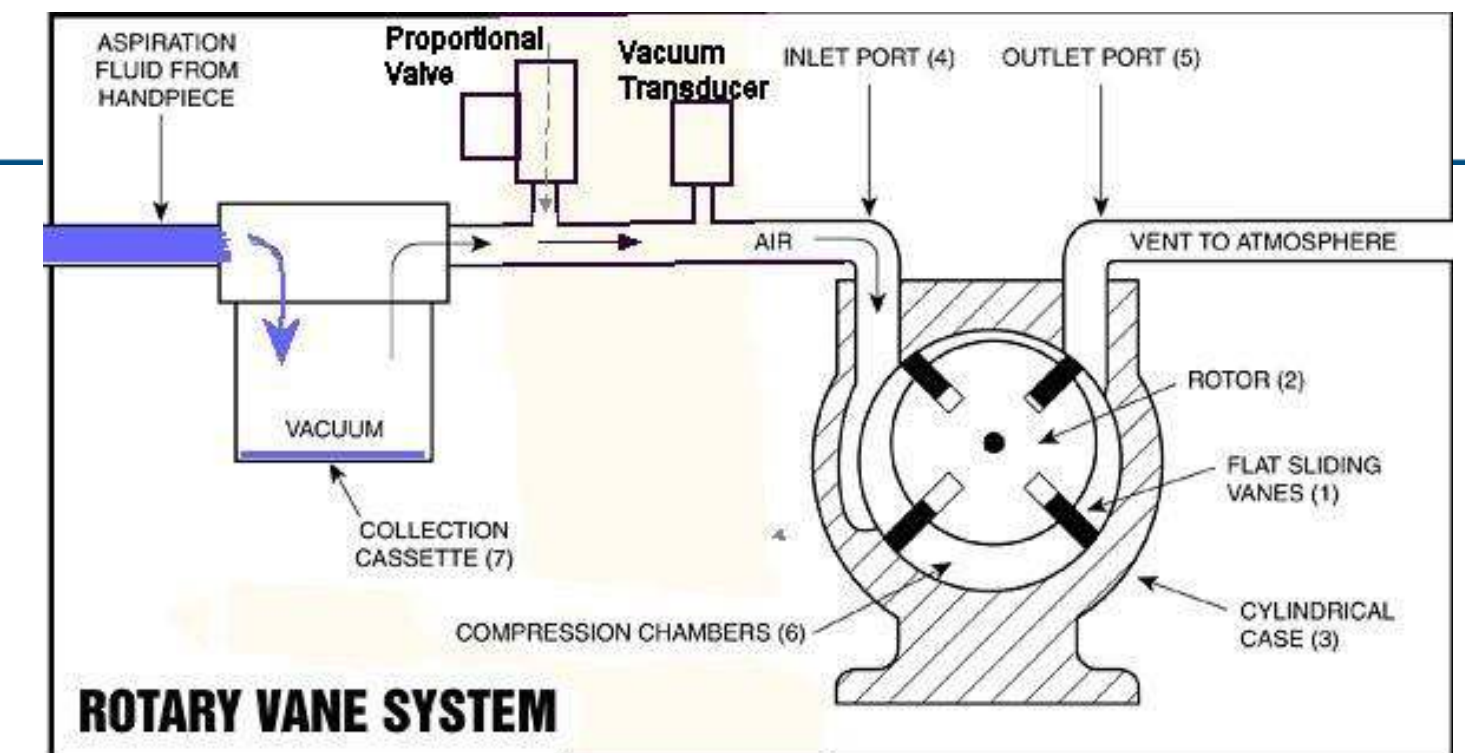


Stellaris Elite

- Faster surgery.

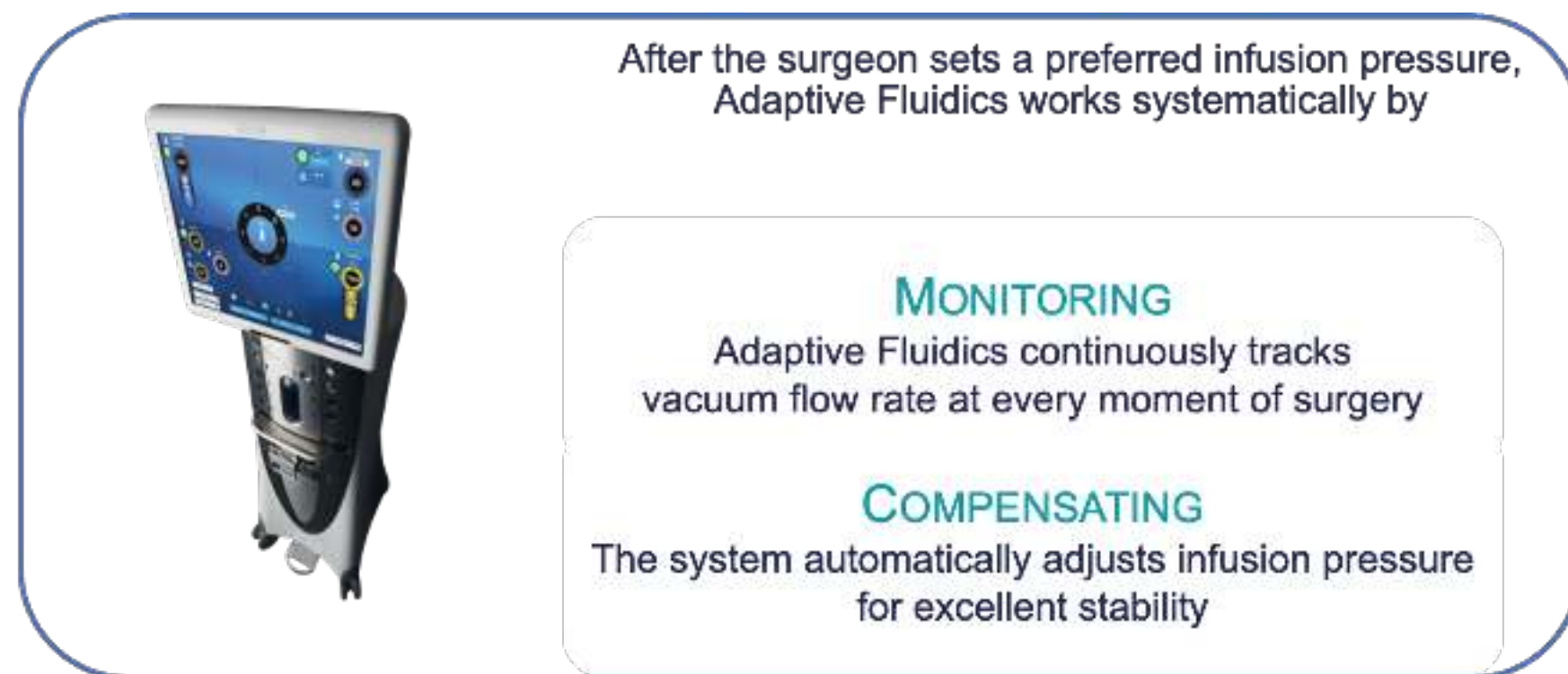


No external compressor

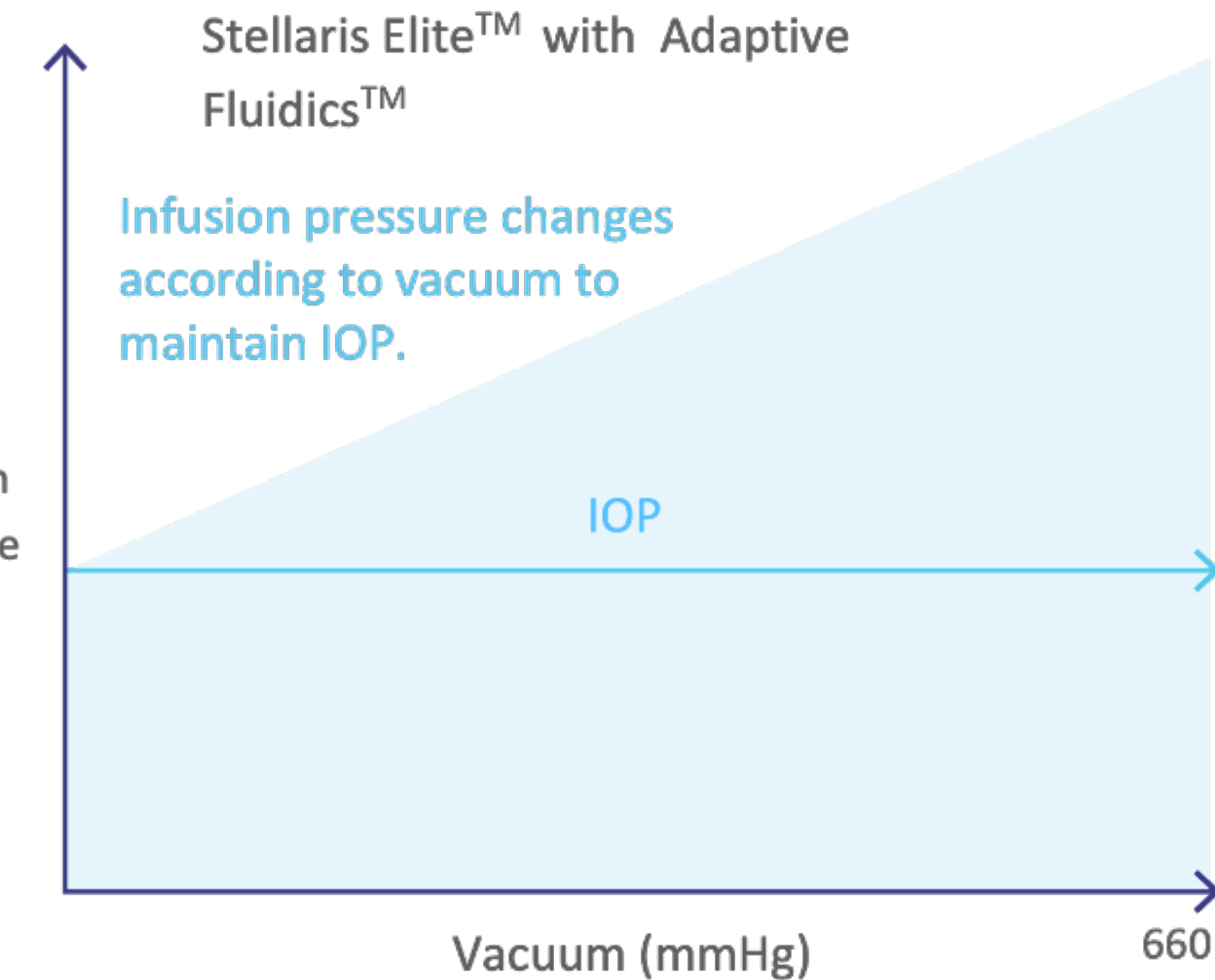


Stellaris Elite (AC. Stability)

Adaptive Fluidics™



Infusion Pressure

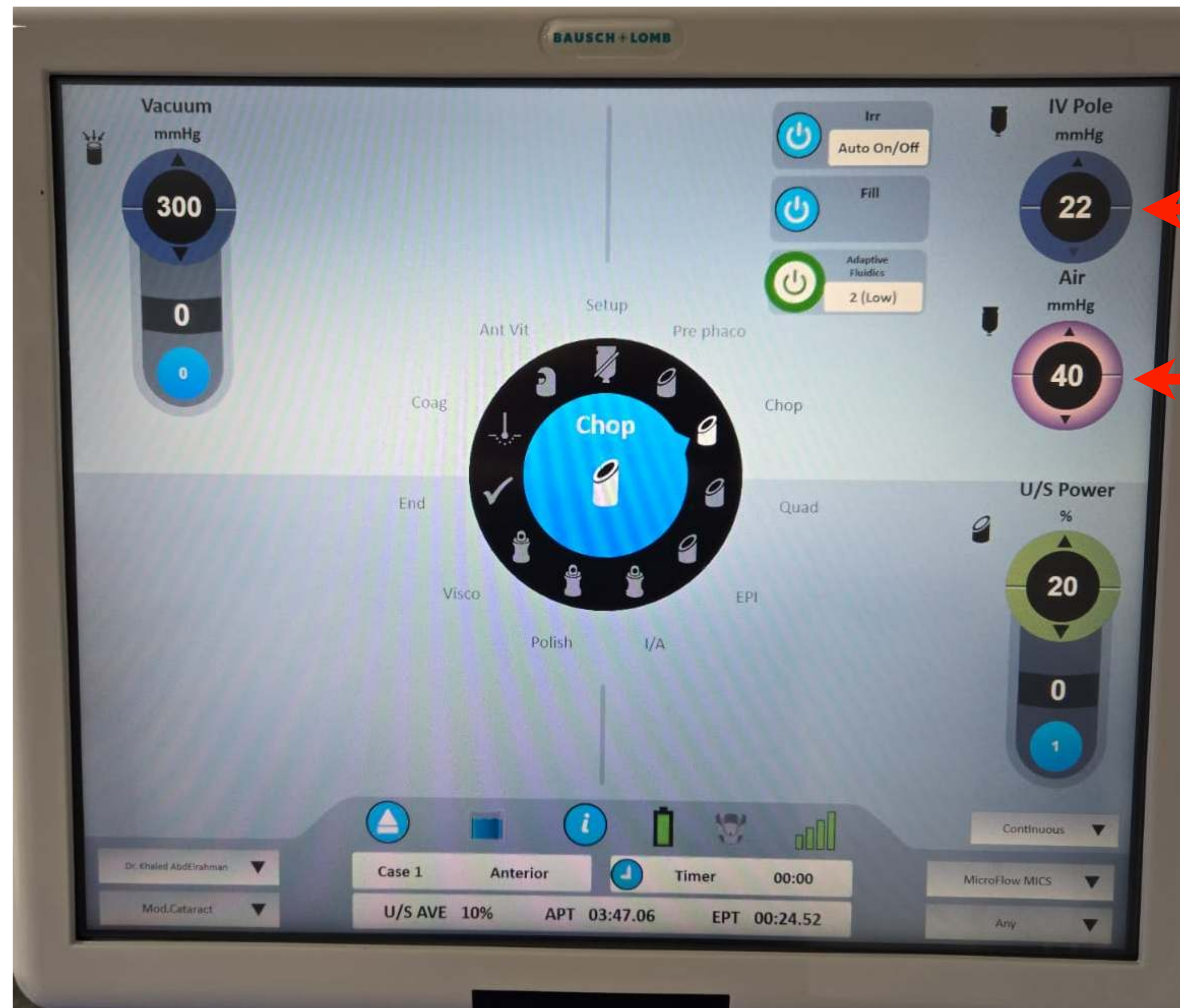


Chamber stability is a critical factor for successful lens extraction. The proactive approach of Adaptive Fluidics™ monitors and responds to the vacuum you command to let you focus on the surgery—not the system.

Proactively increases infusion pressure when more vacuum pressure is used to maintain consistent chamber stability.

Adaptive Fluidics™

Baseline Infusion Pressure BIP (no occlusion)



IV pole pressure mmhg

+

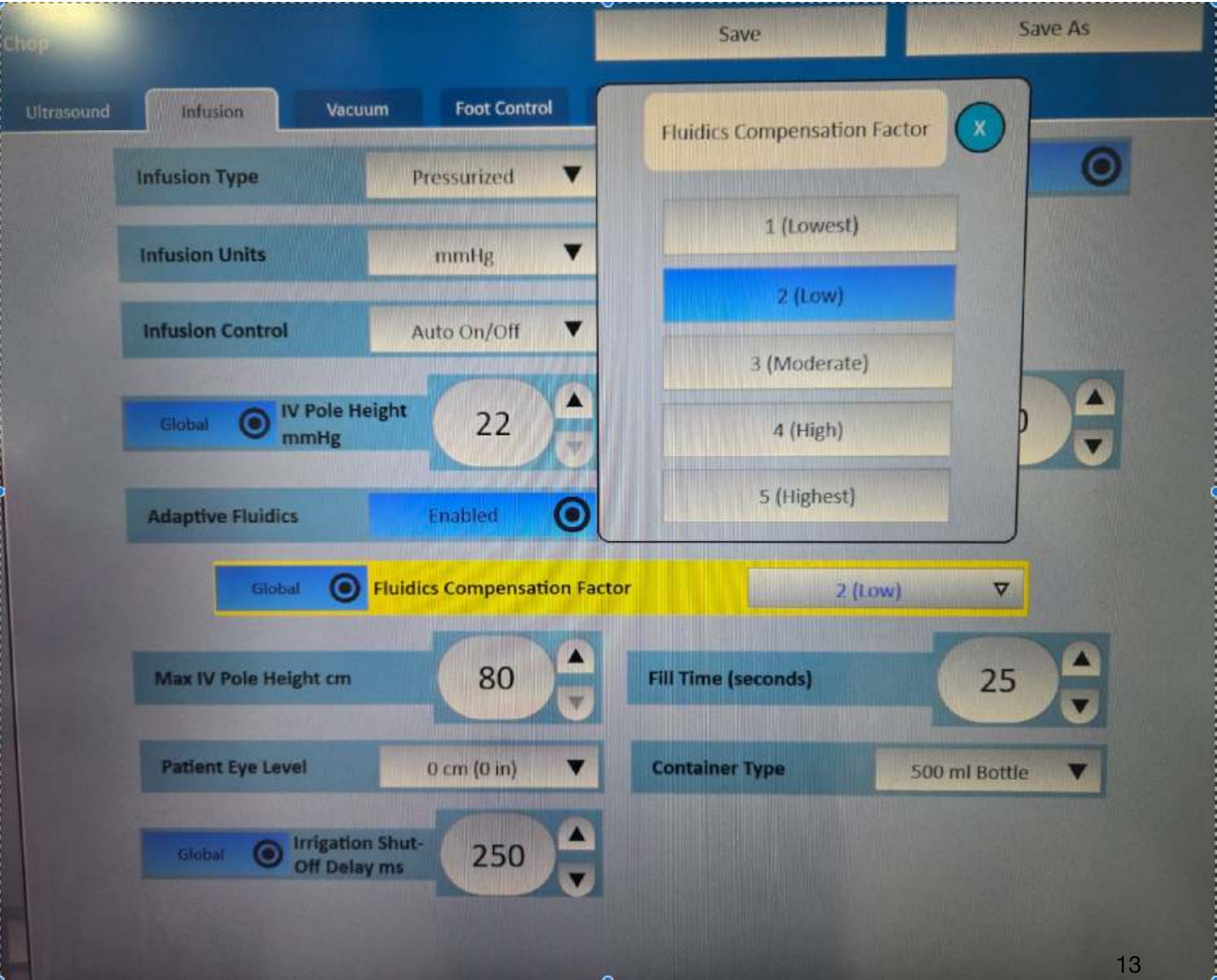
Infusion pressure mmhg

=

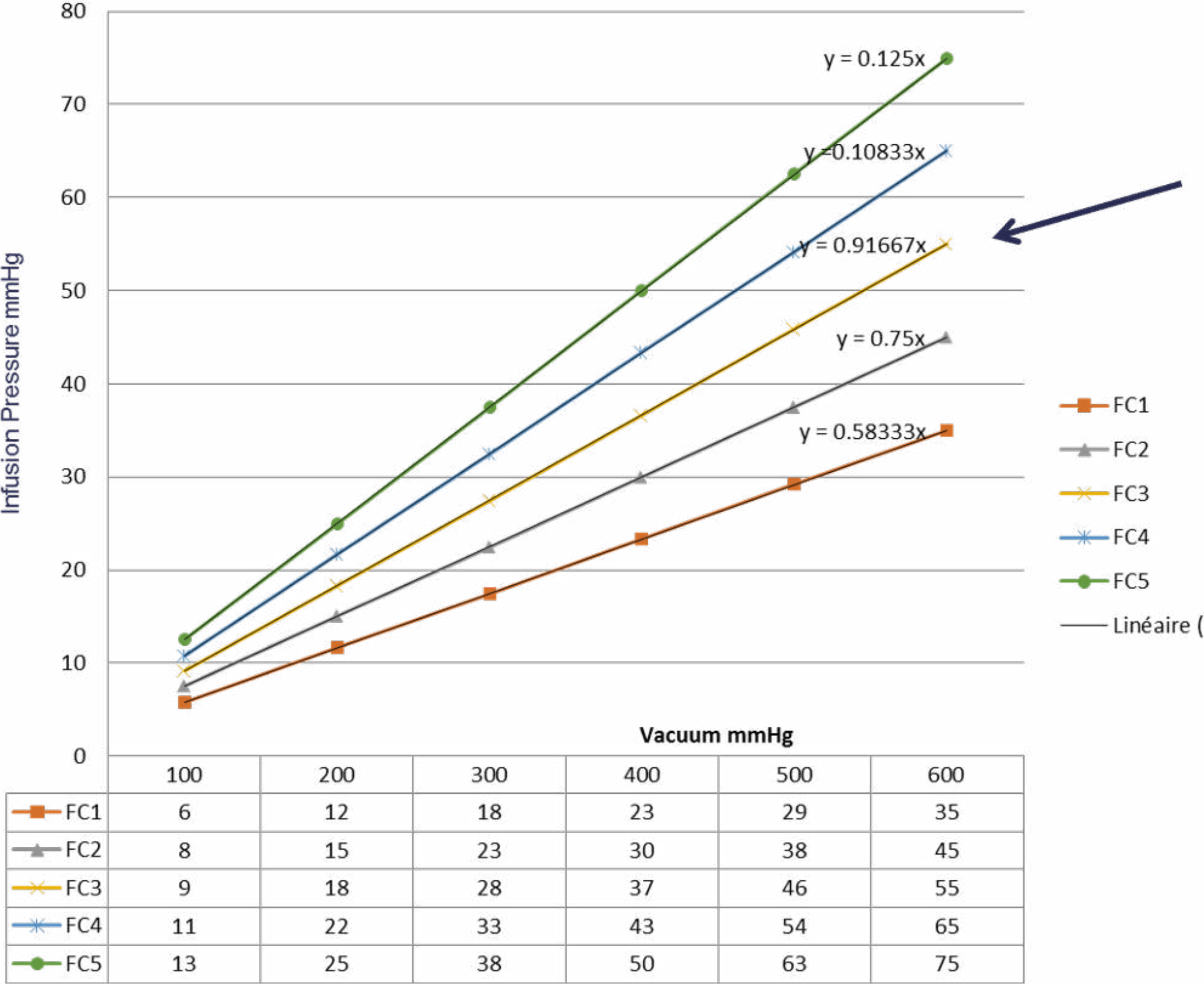
BIP

Adaptive Fluidics™

Compensation Factor CF (vacuum increase)



Pressure Change with various Compensation Factor (CF)



•With Dynamic Infusion CF is 3, the infusion pressure increase proportionally from 0 to 55mmHg when vacuum change from 0-600mmHg

Therefore

55mmHg >> 600mmHg

+++ Vacuum. → +++ compensatory infusion pressure

Adaptive Fluidics™

Compensation Factor CF

0	Vacuum mmHg					
	100	200	300	400	500	600
 FC1	6	12	18	23	29	35
 FC2	8	15	23	30	38	45
 FC3	9	18	28	37	46	55
 FC4	11	22	33	43	54	65
 FC5	13	25	38	50	63	75

- With Adaptive Fluidics™, infusion pressure increases as vacuum increases which may result in the maintenance of a more stable pressure in the eye throughout the surgery.

0

1:11 M

Vac 200

44% U/S 1-30

22mmHg 47mmHg CF3

U/S Ave 8%

03:38/31:58:43

HDR

OS

OD

Vac
0

U/S
0

Dr. Khaled AbdElrahman

Mod.Cataract

Pre phaco

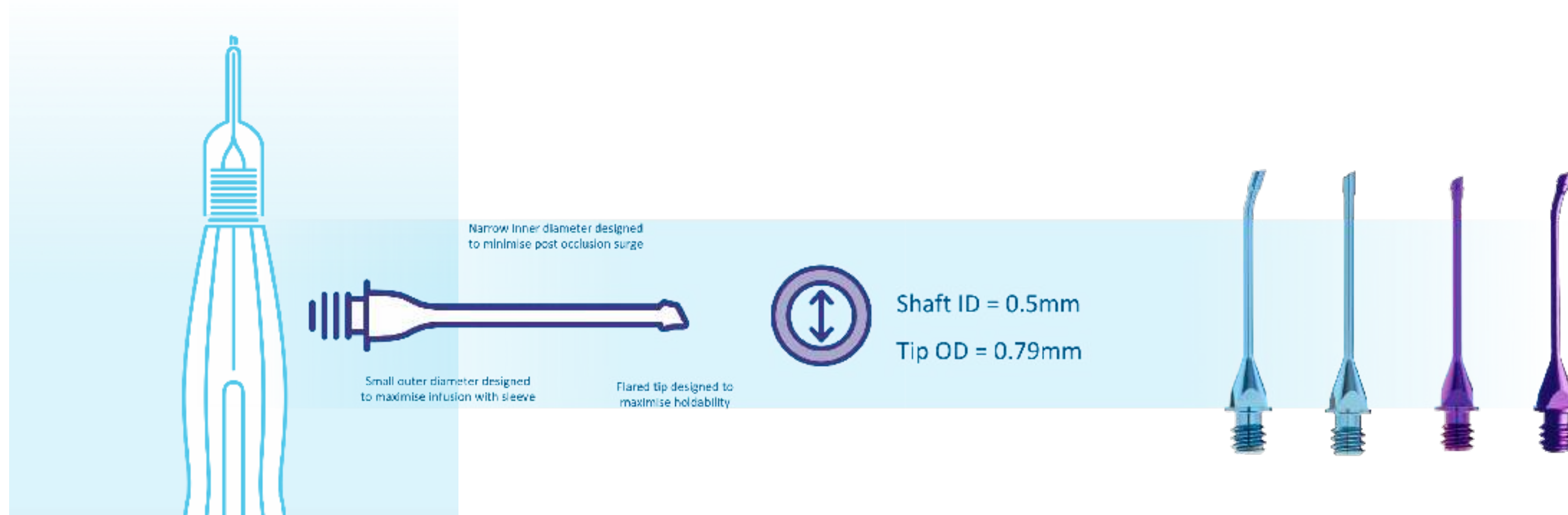
0	Vacuum mmHg					
	100	200	300	400	500	600
FC1	6	12	18	23	29	35
FC2	8	15	23	30	38	45
FC3	9	18	28	37	46	55

Stellaris EliteTM
Vision Enhancement System

Attune[®] Energy Phacoemulsification Management

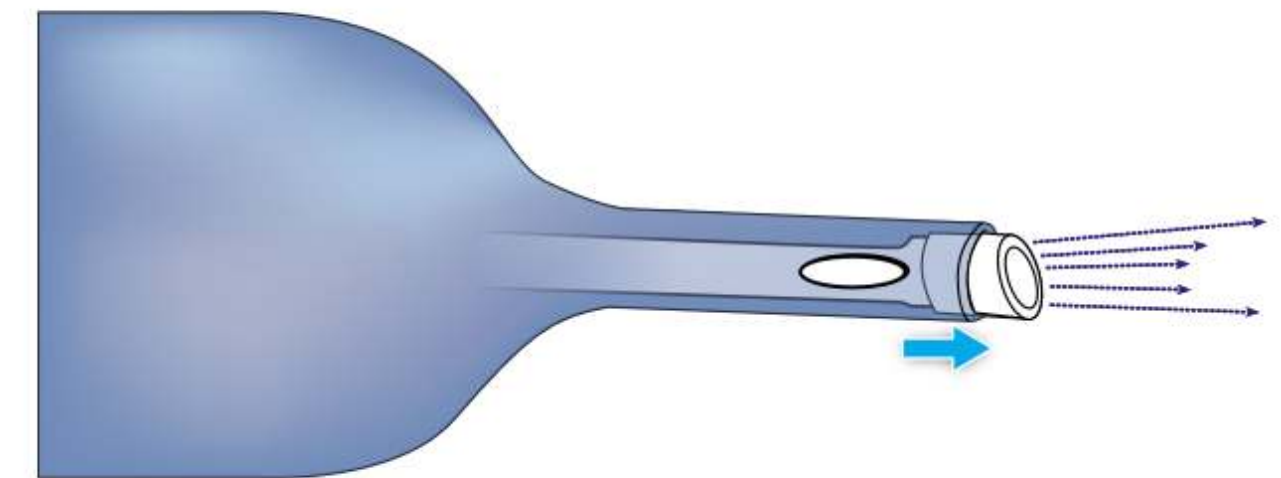


- Six-crystal 28.5 kHz frequency phaco handpiece
- 142* micron stroke length and longitudinal cutting action
- Unique handpiece design that balances mechanical cutting with acoustic cavitation for focused energy at the needle tip

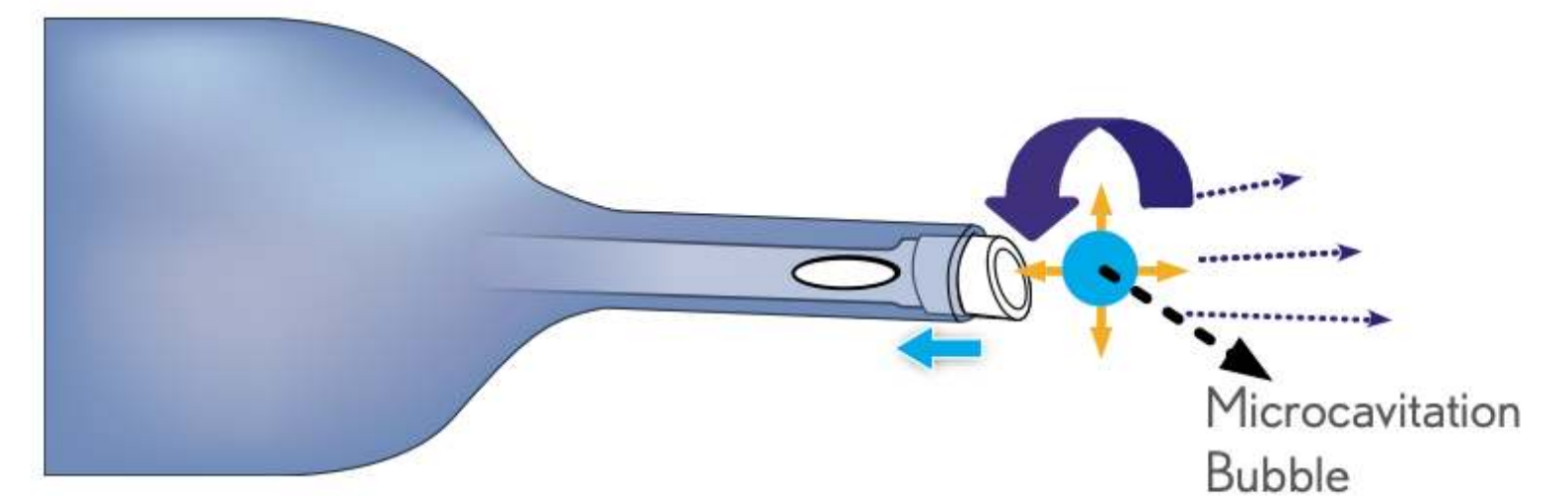


HOW CAVITATION WORKS

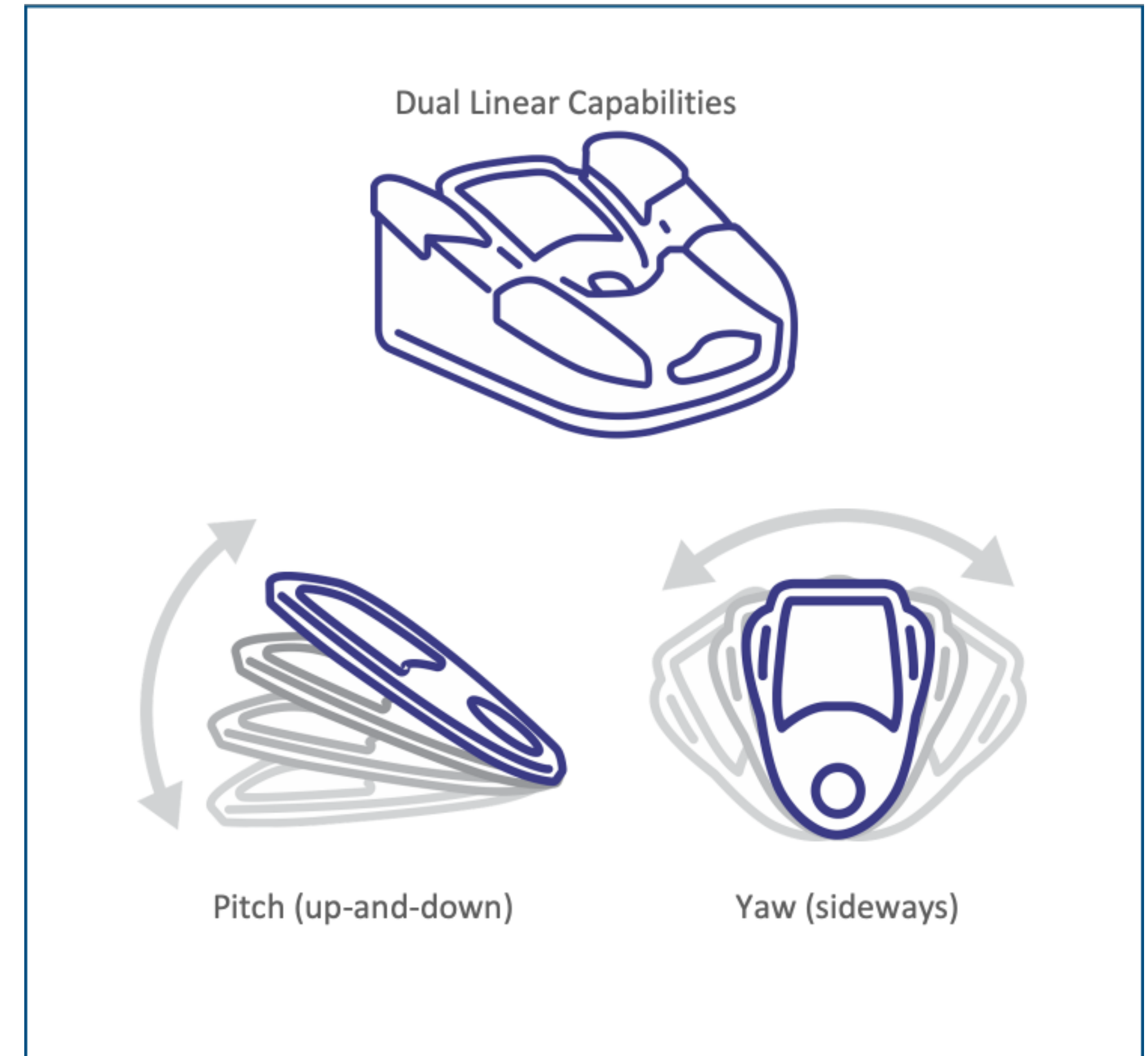
Compression Cycle: During the compression cycle, the phaco needle accelerates forward, exerting a positive pressure that pushes the molecules together



Expansion Cycle: During the expansion cycle, the phaco needle reverses direction and a microcavitation bubble is created by vacuum from the phaco needle backstroke¹



Dual linear foot switch capabilities



0

12:36 M

Vac 200

32% U/S 1-20

22mmHg 40mmHg CF3

U/S EPT 00:02.76

02:17/79:48:01

HDR

OS

OD

Vac
0

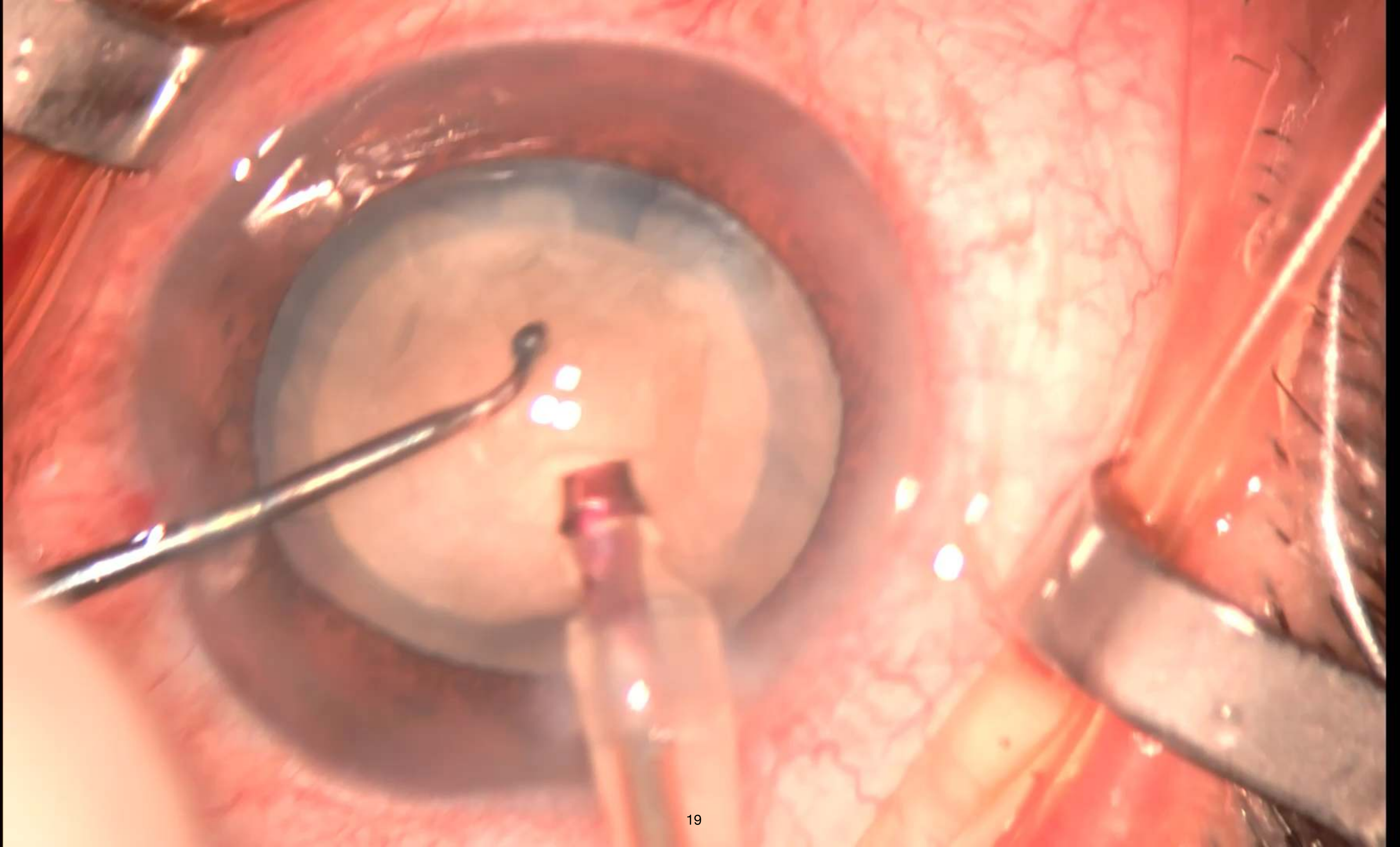
U/S
0

Dr. Khaled AbdElrahman

soft Catract

Pre phaco

Stellaris EliteTM
Vision Enhancement System



Stellaris Elite

- Venturi phaco machine with enhanced fluidics system that optimize the safety and followability.
- Adaptive fluidics that monitor and adjust infusion pressure in every step of the surgery for excellent AC. Stability.
- Ergonomic dual linear foot switch.
- Attune phaco energy carries a harmonious balance between cutting efficiency, and cavitation effect even in low power adjustment .

Thank you