



# Phaco course

Introduction, planning and setting up the machine



# Planning

- ✦ Risk stratification of cases
- ✦ Appropriate cases for experience of surgeon
- ✦ Anticipate surgical needs and inform team of complexities
- ✦ Allows 20% reduction of complications (0.9% of 27,000 cases)
- ✦ Risk of PCR dropped from 1.03 to 0.8 = 20% reduction in risk



## BOOKING FORM AND RISK ASSESSMENT FOR CATARACT SURGERY

Patient label

CLINIC DATE:.....

RRD or DTT DATE:.....

BREACH DATE:.....

RIGHT EYE / LEFT EYE

### TELEPHONE NUMBER:

| Risk Factor                                                                                                                                                                                  | Score | This patient (tick) | Risk Factor                                           | Score | This patient (tick) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------------------|-------------------------------------------------------|-------|---------------------|
| Age 80-90                                                                                                                                                                                    | 1     |                     | Axial length <21.5mm                                  | 2     |                     |
| Age 90+                                                                                                                                                                                      | 2     |                     | >26mm                                                 | 1     |                     |
| Diabetic retinopathy                                                                                                                                                                         | 1     |                     | >30mm                                                 | 2     |                     |
| Brunescent/white/no fundus view                                                                                                                                                              | 3     |                     | On $\alpha$ blocker: Doxazosin                        | 1     |                     |
| PXF/phacodonesis                                                                                                                                                                             | 3     |                     | On $\alpha$ blocker: Tamsulosin (or similar)          | 2     |                     |
| Small pupil                                                                                                                                                                                  | 2     |                     | Unable to lie flat or poor cooperation                | 2     |                     |
| Shallow AC (<2.5mm)                                                                                                                                                                          | 1     |                     | Fuchs dystrophy                                       | 1     |                     |
| Previous vitrectomy                                                                                                                                                                          | 1     |                     | Only eye                                              | 1     |                     |
|                                                                                                                                                                                              |       |                     | <b>TOTAL SCORE</b>                                    |       |                     |
|                                                                                                                                                                                              |       |                     | <b>If score <math>\geq</math> 3, consultant to do</b> |       |                     |
| Refractive error >+4.00 or -10.00, prev major procedure esp. silicone oil filled eye, previous refractive surgery, IOL exchange, non-standard IOL – <b>book into special biometry clinic</b> |       |                     |                                                       |       | YES/NO              |



# Plan your practise



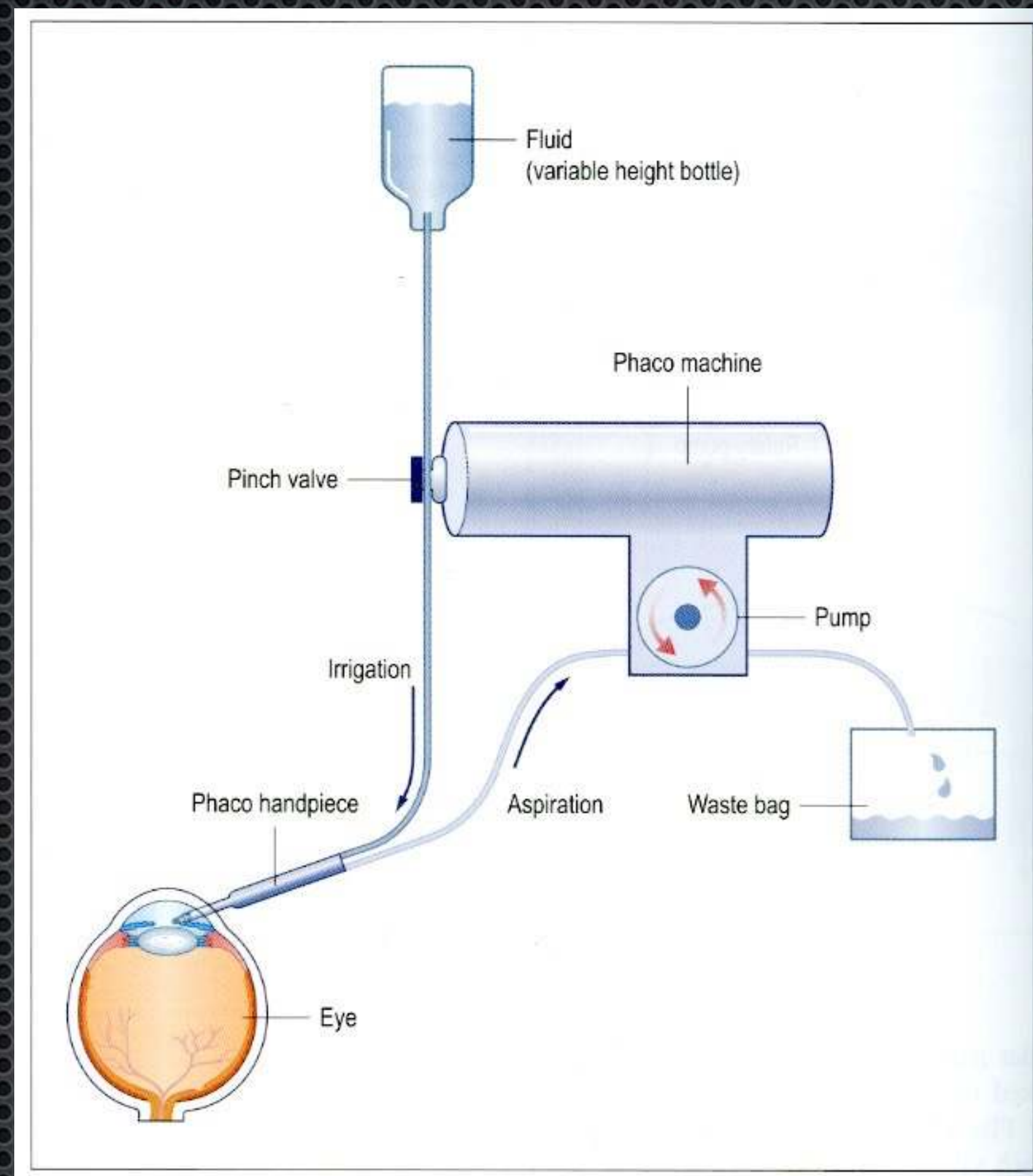


# Machine set-up

- ✦ Peristaltic v Venturi
- ✦ ?



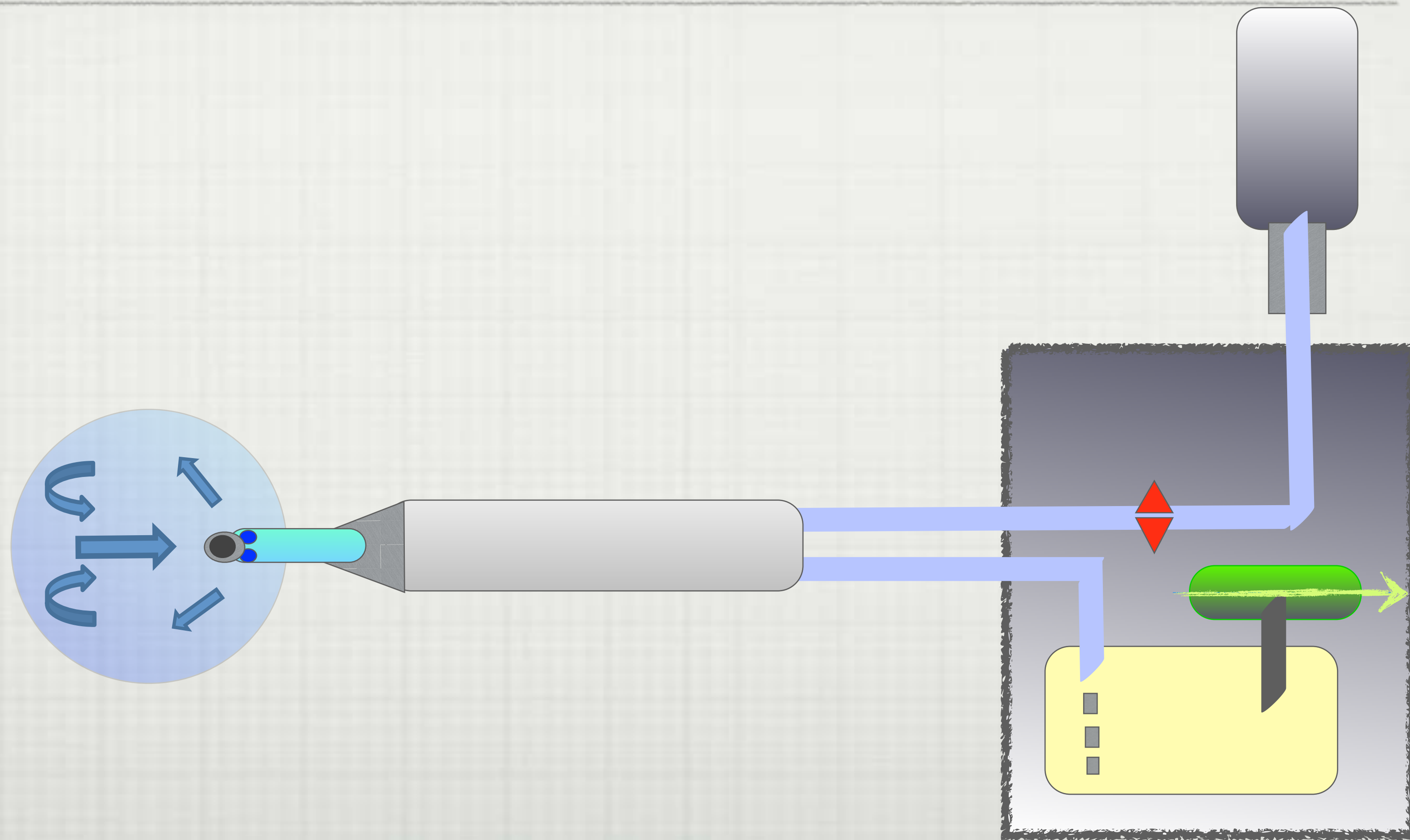
# General set up





# BASIC SET UP

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# Phacodynamics

## Terminology

**Infusion** - Fluid is gravity fed from the bottle when the pinch valve opens; depends on height of bottle

**Aspiration rate** - Rate of fluid drawn through the eye by the peristaltic pump

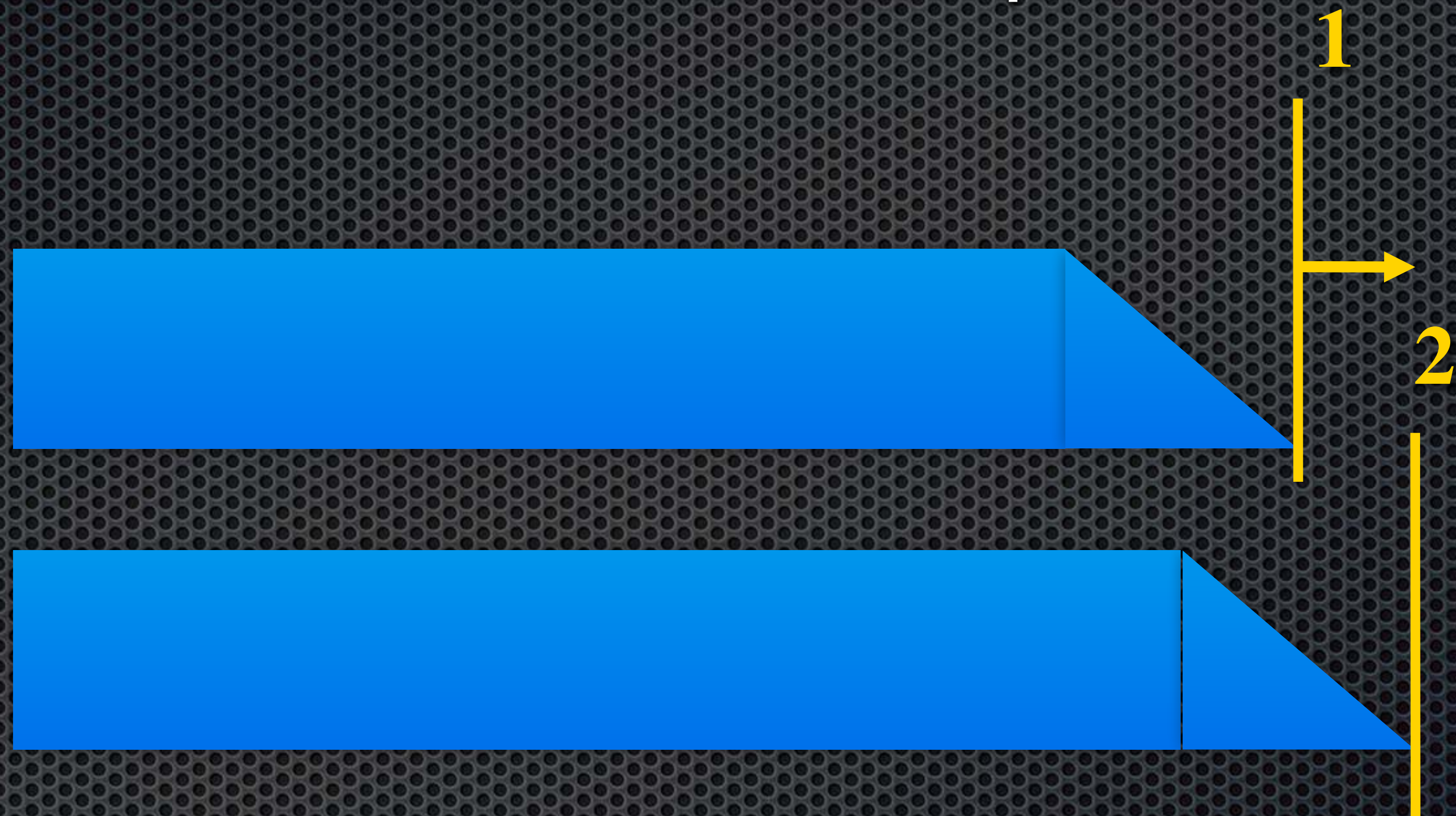
**Vacuum** - Created by blocking the phaco tip while aspirating

**Phaco power** - stroke length of the needle (50 - 80%)

**Pulse mode** - Intermittent phaco power to attract fragments



# Conventional Phaco probe



PROBE MOVES BETWEEN 1 AND 2  
40,000 TIMES A SECOND



# General principles

- ✦ 1. Irrigation on (Always leave on constant irrigation)
- ✦ 2. Aspiration (pump starts working - pulls fluid from the Eye - set rate)
- ✦ 3. Phaco - linear control of power



# Settings

- ✦ Sculpting



# Divide and conquer

| Vacuum (mmHg) | Aspiration (ml/min) | Phaco % |
|---------------|---------------------|---------|
|---------------|---------------------|---------|

|    |  |  |
|----|--|--|
| 20 |  |  |
|----|--|--|

|  |    |  |
|--|----|--|
|  | 25 |  |
|--|----|--|

|  |  |    |
|--|--|----|
|  |  | 60 |
|--|--|----|

|                  |                              |  |
|------------------|------------------------------|--|
| Fragment removal | change to pulse mode (10 Hz) |  |
|------------------|------------------------------|--|

|     |  |  |
|-----|--|--|
| 280 |  |  |
|-----|--|--|

|  |    |  |
|--|----|--|
|  | 30 |  |
|--|----|--|

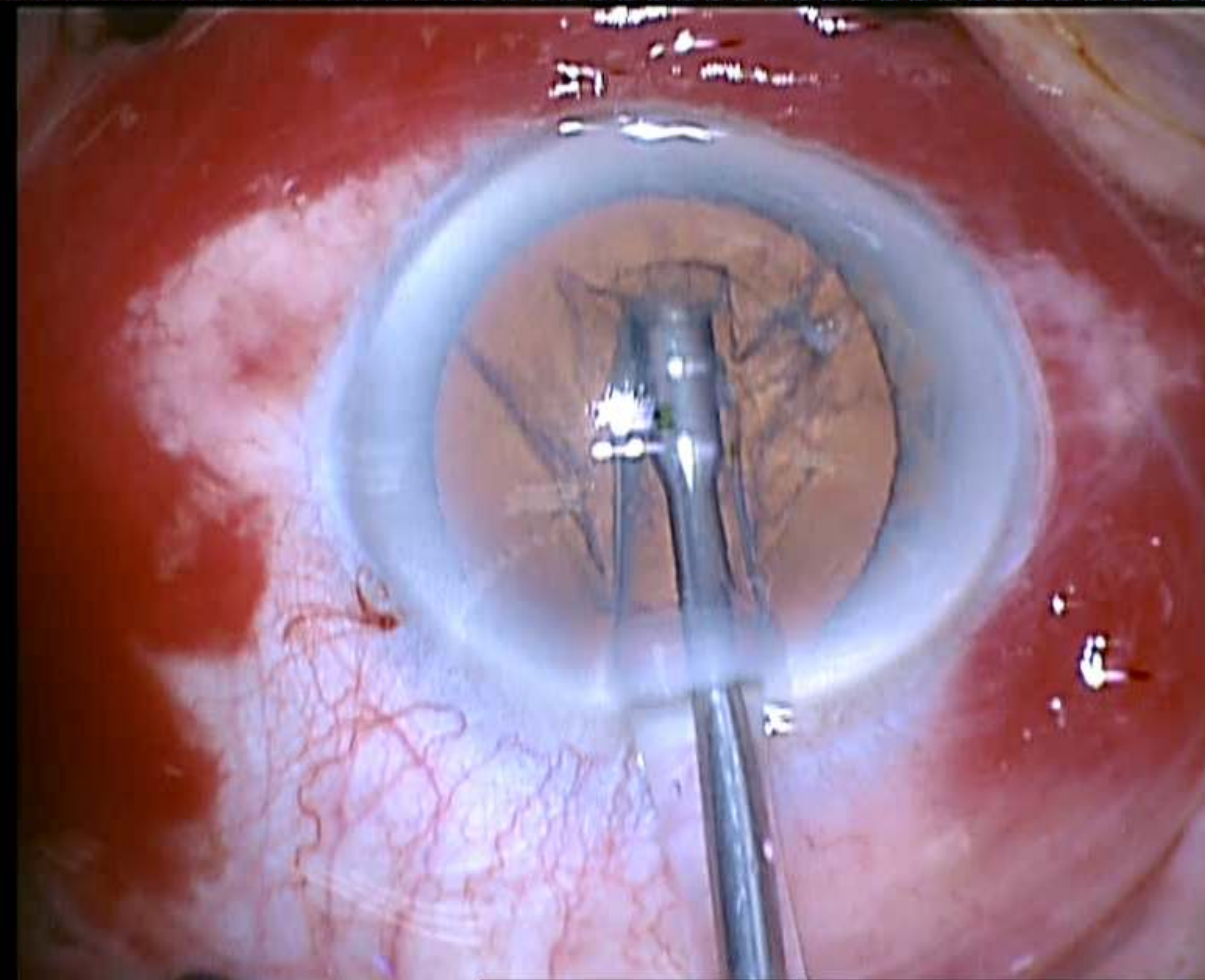
|  |  |    |
|--|--|----|
|  |  | 60 |
|--|--|----|



# Sculpting

- ✦ Slow, shallow planing movement (like planing wood)
- ✦ Make groove wider than tip and sleeve
- ✦ Make it deep enough - usually deeper than the deep “Y” suture
- ✦ Instruments in depth of groove to crack
- ✦ Remove 2nd instrument when not being used (65% less fluid through the Eye)
- ✦ Always remove 2nd instrument before the last fragment removal





Phaco 60%  
Vacuum  
20mmHg  
Asp rate  
25ml/min

Phaco  
pulsed  
Vacuum  
280mmHg  
Asp rate  
30ml/min



# Summary

- ✦ Know which pump type you are using
- ✦ Understand the reasons for the settings you use
- ✦ Practise setting up the machine
- ✦ Always leave irrigation on
- ✦ Remove second instrument for last fragment



Thank you

