

Understanding Cytologic Techniques

How to get the students to put it all together!

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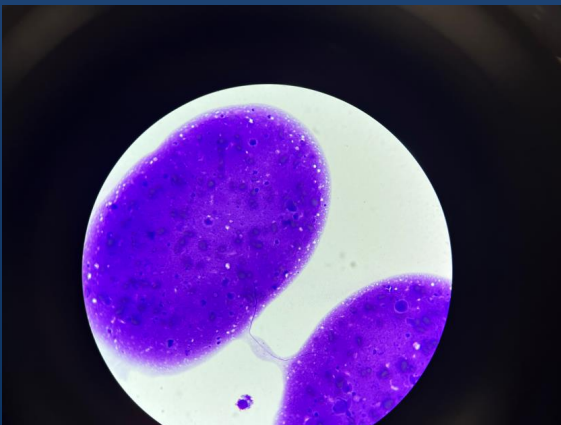
Cytology is so easy?

- **Veterinary technician students struggle**
- **Veterinary students struggle**
- **Veterinarians in practice struggle**
- **Why?**
- **In the past, classes separated techniques from microscopic evaluation**

Why change?

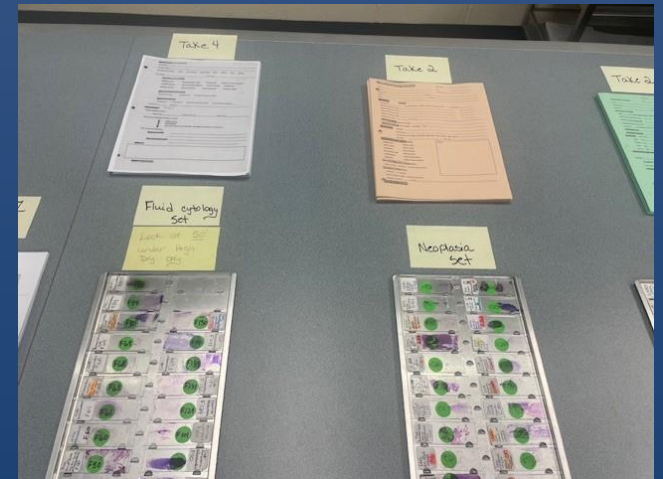
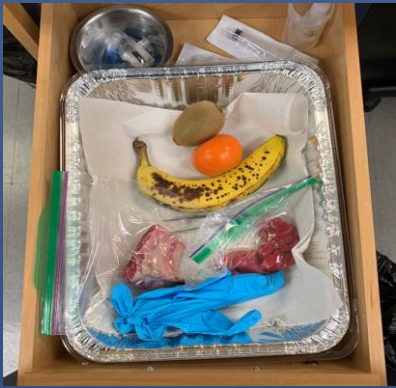


- **Garbage in = Garbage out!**
- **Technicians help ensure what goes to a reference lab is a quality sample**



How we used to do it

- Food fight lab – Techniques
- Prepared slides – Cytologic Evaluations
- Exam to confirm knowledge
- But when asked about using line prep technique for urine – Most didn't understand why!





How we used to do it

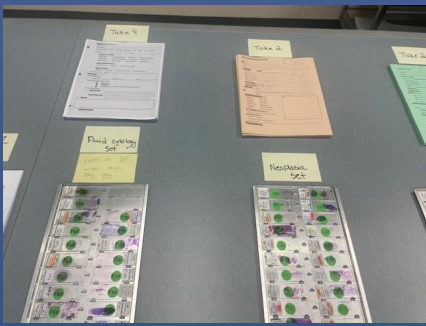
- **Food Fight Lab – Techniques**
- Dry swab – sterile cotton-tipped swab – inside student’s mouth – “roll” onto slide
- Superficial skin scraping – ectoparasites – Sarcoptes – kiwi fruit
- Deep skin scraping – Demodex – tangerine
- Impression from excised tumor – piece of stew beef
- Fine needle aspirate, compression smear – yogurt (Go-Gurt®) in glove
- Fine needle biopsy (without aspirating), starfish smear – banana
- Line smear for low cellularity fluid – urine
- Compression smear for high cellularity fluid – tomato juice
- Scraping technique to recover cells – beef short ribs – cut into segments, scrape the bone



How we used to do it

- Food fight lab – Techniques





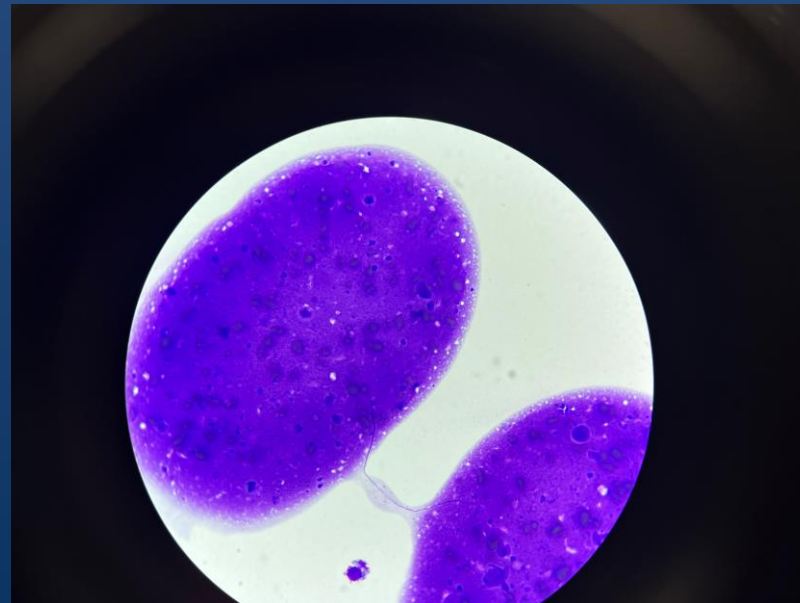
How we used to do it

- Prepared slides – Cytologic Evaluations
 - Inflammation – Fluid slide set
 - Reproductive – Vaginal swabs
 - Neoplasia/Hyperplasia – Tissue set
 - Lymph Node – Lymph node set



The disconnect

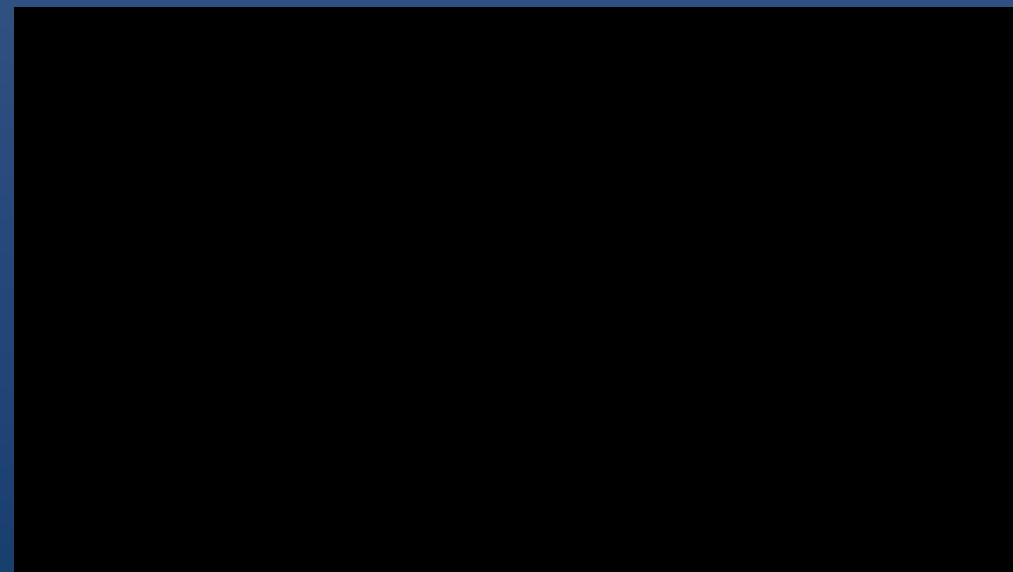
- When asked on an exam how to improve this slide, they couldn't figure out how to correct?



The change over



- **First lab (OC) or pre-lab video and work (DE)**
- **Food Fight Lab/Video**

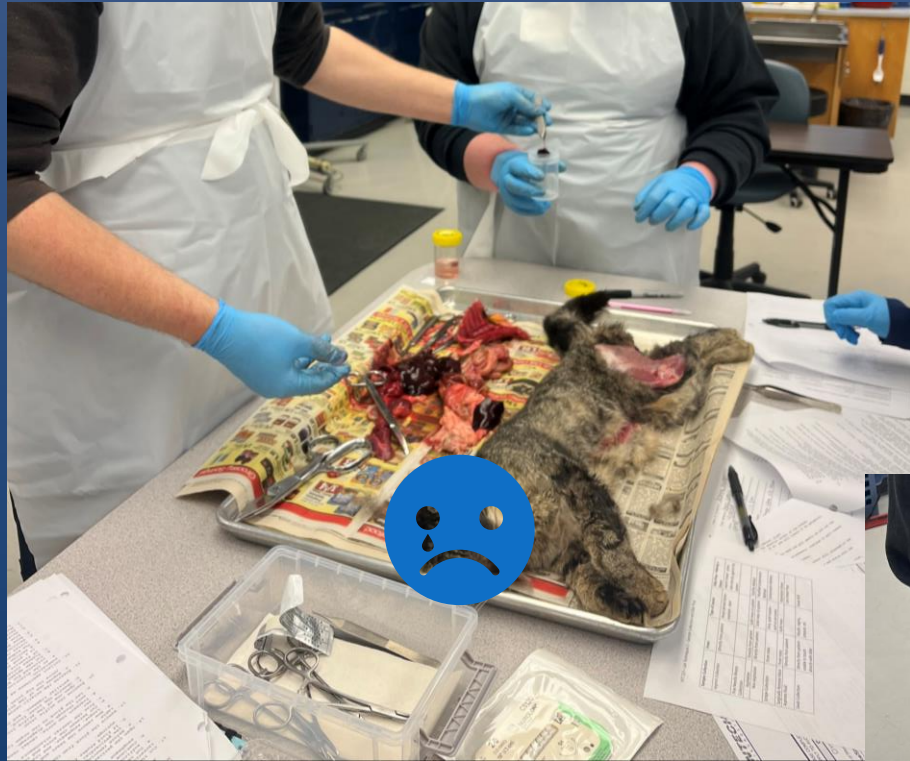


The change over

- **Second lab – for both**
- **Necropsy with cytologic techniques**



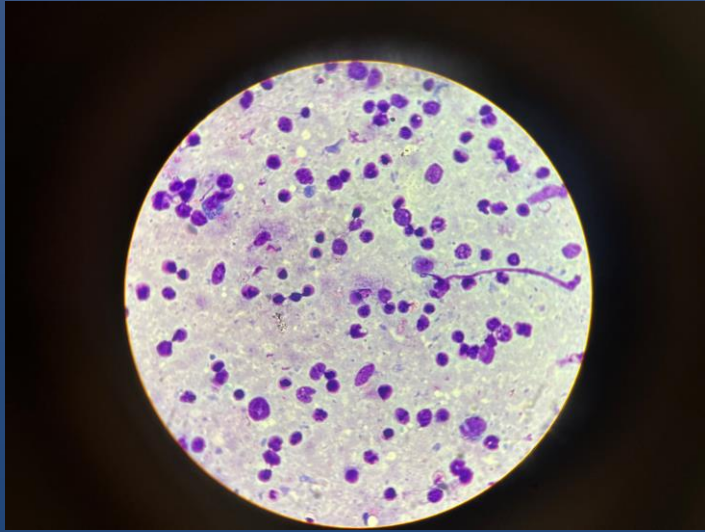
The change over



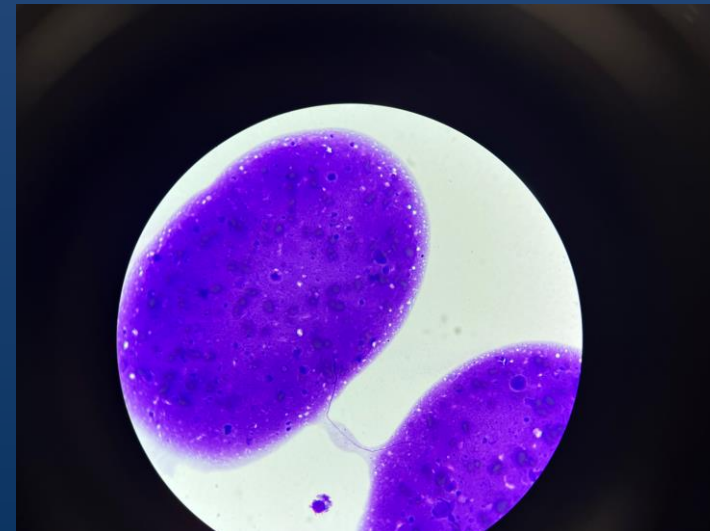
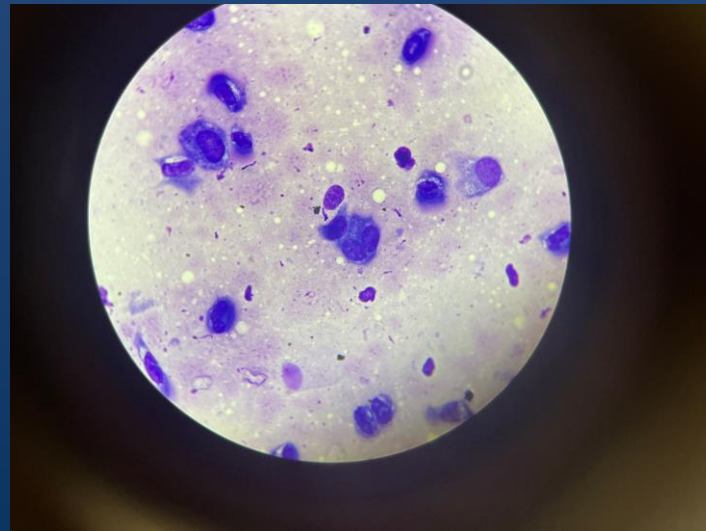
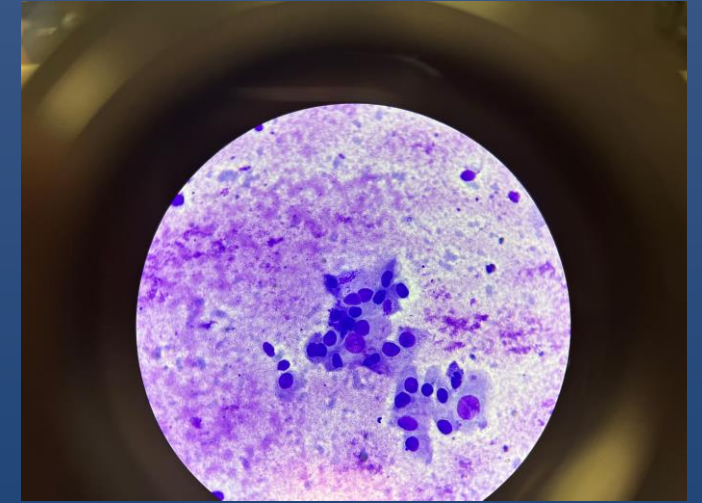
The change over

- **Everyone in the group (up to 5 students per group) took a sample of the same organ but used different techniques for collection and smears**
- **Everyone stained and looked at their slides under the microscope and also evaluated their group's slides**

The change over

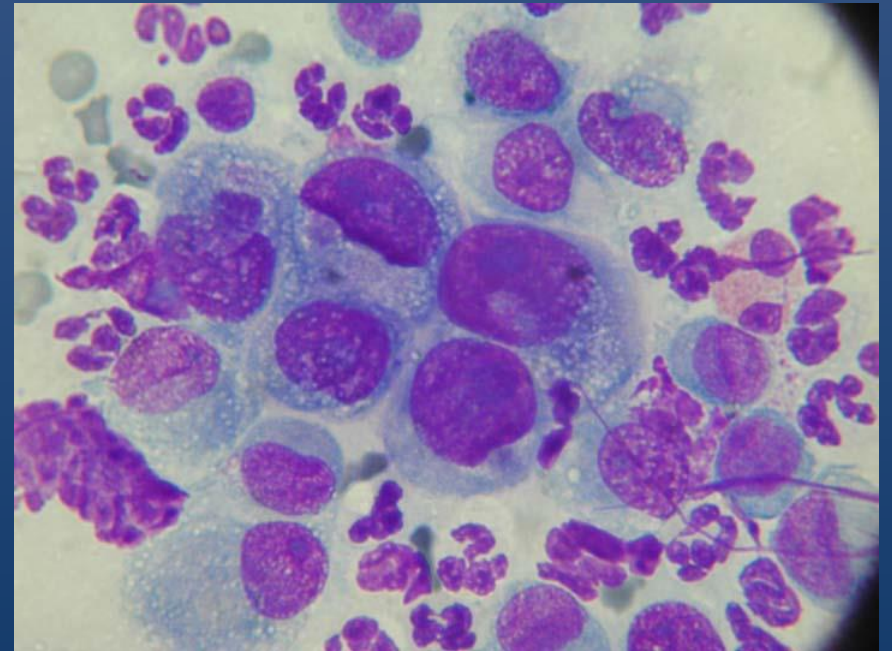


They evaluated for
technique only in the
second lab

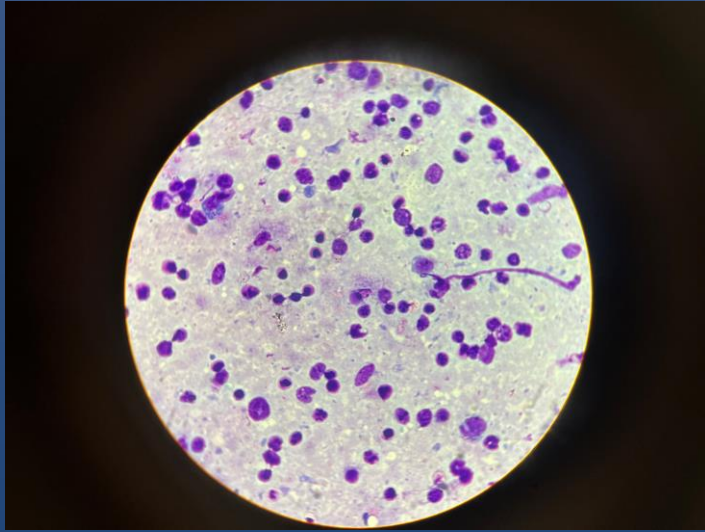


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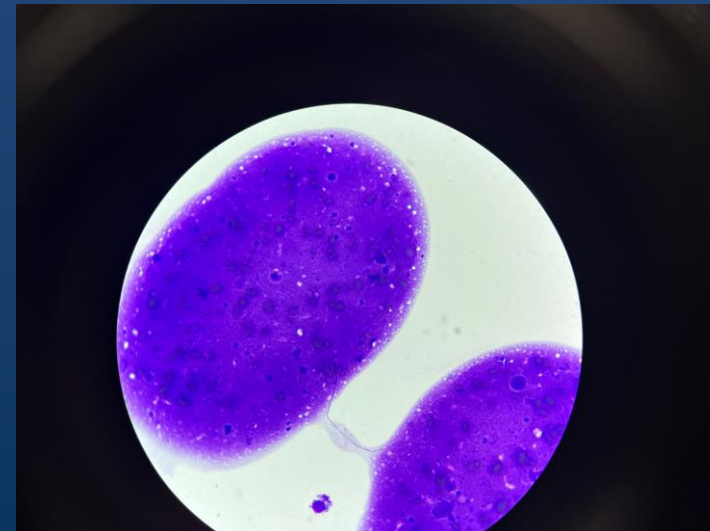
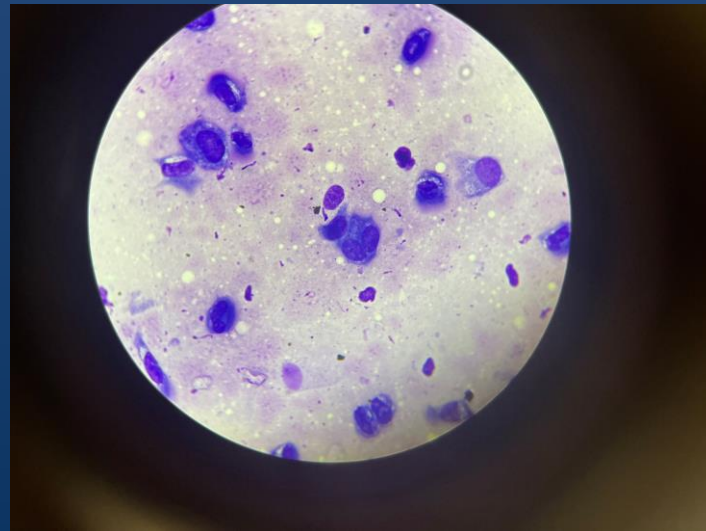
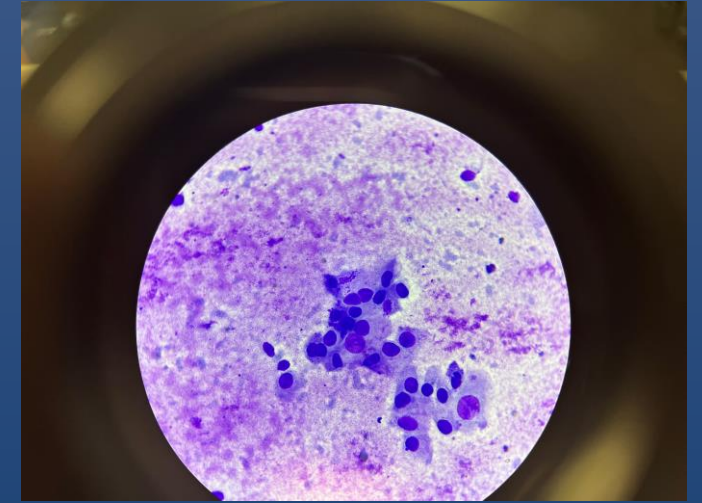
- **Third lab – separate day for OC same day DE**
- **Cytologic Evaluations**



The change over



They evaluated their own slides as well as prepared slides in the third lab



Other things added

- Cytology review videos of slides under the microscope for Bone Marrow, Inflammation, Reproduction, Neoplasia, and Lymph Node were made and shared prior to labs

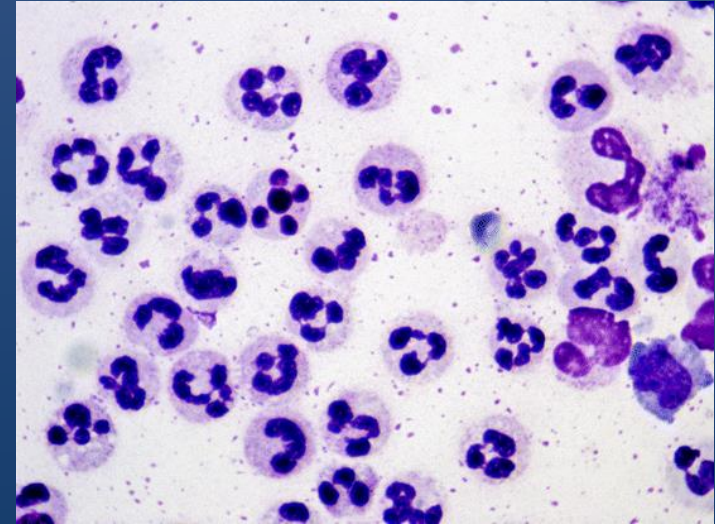


Results

- **100 % positive feedback on prelab videos**
- **Improved examination scores seen on cytologic techniques**
- **More confidence and engagement seen in lab**

Areas of Growth

- Add a video of performing the cytologic techniques on a cadaver for prelab review



Conclusions

- **Cytology can be fun to learn and engaging**
- **Using the methods described technicians now understand better the need for high quality samples and how to evaluate them and make improvements**
- **This will help improve quality of samples sent to the lab or reviewed in house in the future**

Acknowledgements

Stephanie Atkins, LVT, LAT – Photography

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Questions?



Contact me: digrassiew@brcc.edu

[Lymph Node Tutorial](#)

[Neoplasia Tutorial](#)

Reproductive Cytology

