NOVEL ALTERNATIVES IN EDUCATION AND TRAINING USING THE ELNADY TECHNIQUE

By

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OBJECTIVES

• To identify the challenges and the solutions in vet. education and training.

• To demonstrate the different alternatives including the “Elnady Technique”

• To present examples of the developed specimens for teaching anatomy and other disciplines.

• To explore the novel alternatives of using the technique in education and training.
INTRO.

Seeking to avoid the harmful use of animals is a must for vet. education & training.

So we should have alternatives
ALTERNATIVES

COMPUTER SW

AND VR
أحلى حديقة حيوان في تايلاند
SHEFFIELD BIOSCIENCE PROGRAMS

http://www.sheffbp.co.uk/sbpmain.htm
HTTP://WWW.NCA-NL.ORG/
NETHERLANDS CENTRE ALTERNATIVES TO ANIMAL USE
HTTP://WWW.EPISKIN.COM

• World leader in tissue engineering for in vitro human skin and epithelial models.
• They provide weekly reconstructed human tissues tailored to your needs
Eliminating Research Involving Animals
ORGAN-ON-A-CHIP (OOC)

• is a multi-channel 3-D microfluidic cell culture chip that simulates the activities, mechanics and physiological response of entire organs and organ systems, a type of artificial organ.
ALTERNATIVES - COMPUTER SW AND VR

• All are Powerful training tools

• Expensive

• May not always provide sufficient hands-on experience.
Ancient Egyptian embalmers used natron for human cadaver mummification
ALTERNATIVES TISSUE PRESERVATION

(FORMALIN)

Formalin hazards
ALTERNATIVES - TISSUE PRESERVATION

(PLASTINATION)

• High cost to construct a plastination lab.
• Chemicals need to be imported
# Alternatives - Tissue Preservation

## ElNady Technique

<table>
<thead>
<tr>
<th>The Technique</th>
<th>The Developed Models</th>
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<tbody>
<tr>
<td>Simple and inexpensive</td>
<td>Soft, flexible and durable</td>
</tr>
<tr>
<td>Quick</td>
<td>Non toxic – safe to environment</td>
</tr>
<tr>
<td>Available chemicals</td>
<td>Easily stored</td>
</tr>
<tr>
<td>@ room temp</td>
<td>Can be colored</td>
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<tr>
<td>No specialized equipment</td>
<td>No offensive odor</td>
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Elnady Technique (5 main steps)

1. Fixation
   - Formalin

2. Dye injection, dissection and bone drilling
   - Colored latex

3. Dehydration
   - Acetone or alcohol

4. Impregnation
   - Glycerin

5. Curing
   - Cornstarch
<table>
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<tr>
<th>In Teaching Anatomy &amp; Related disciplines</th>
<th>In Clinical Training &amp; Simulation</th>
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<tbody>
<tr>
<td>• All biological tissues could be preserved including:</td>
<td>• Dystocia training</td>
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<tr>
<td>• Organs</td>
<td>• Arthroscopy training – Nerve block</td>
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<tr>
<td>• Body systems (nervous system, digestive, ...etc)</td>
<td>• Endoscopy - Laparoscopy</td>
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<tr>
<td>• Whole cadaver</td>
<td>• Ultrasonography</td>
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<td></td>
<td>• Surgical skills (suture – intestinal anastomosis ...etc)</td>
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<tr>
<td></td>
<td>• Intravenous injection/sampling</td>
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SOME SPECIMENS DEVELOPED (2014-2017) AT
THE COLLEGE OF VET. MED. CAIRO UNIV.
EGYPT
SOME SPECIMENS DEVELOPED (2017) AT THE COLLEGE OF VET. MED. TUSKEGEE UNIV. USA
Pathological specimens

Canine Heart with heart worm

(*diroflaria immitis*)
HEART OF A HORSE
PRESERVED & COLORED
FOOT OF A HORSE
CORIUM
SOME SPECIMENS DEVELOPED (2016) AT CUMMINGS SCHOOL OF VET. MED. TUFTS UNIV. USA
DOG THORACIC LIMB
DISTAL LIMB OF A HORSE PELVIC LIMB
THORAX, ABDOMEN AND PELVIS OF A MALE DOG
ENDOSCOPY training
CONCLUSION

- The Elnady Technique is an innovative, and inexpensive for preservation.
- Presents great help for students and teachers.
- Provides opportunities for hands-on experience of a wide range of disciplines.
- It has been well received by faculty and students.
- Using a body donation program, animals can be preserved and contribute to the ending of the harmful use of animals.
THANK
YOU