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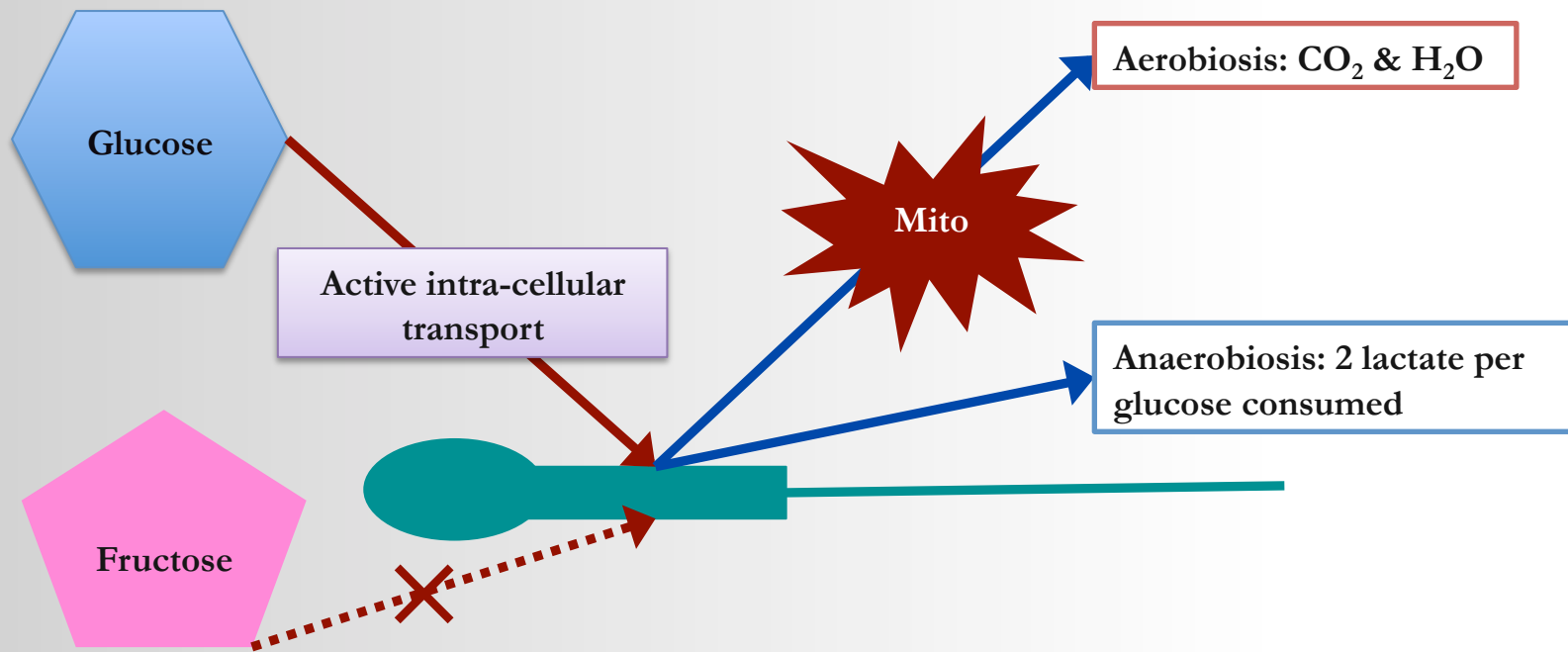


# GLUCOSE USE AND LACTATE PRODUCTION BY EQUINE FRESH SEMEN IN HUMAN AND EQUINE EXTENDERS

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# EQUINE SEMEN METABOLISM

BACKGROUND





# SEMEN EXTENDERS

## Equine Semen Exenders

### -INRA96™:

- Milk proteins
- High lactose and glucose concentration
- No lactate

## Human Semen Extenders

### -Allgradwash™:

- No proteins
- Low glucose concentration and no lactose
- Lactate inside

BACKGROUND



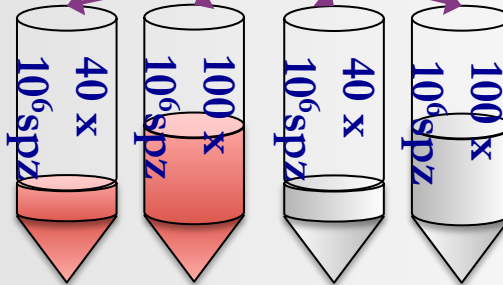
## OBJECTIVES

- TO COMPARE EQUINE SEMEN GLUCOSE USE AND LACTATE PRODUCTION
  - IN INRA96<sup>TM</sup> (HIGH GLUCOSE CONCENTRATION AND NO LACTATE)
  - IN ALLGRADWASH<sup>TM</sup> (LOW GLUCOSE CONCENTRATION AND LACTATE PRESENT IN MEDIUM)



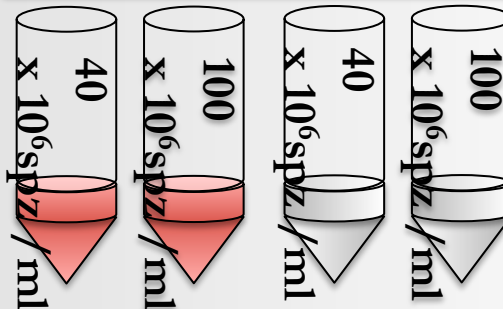
20 ejaculates:  
 -5 stallions  
 -4 collections

Raw semen analysis:  
 •Concentration  
 •Motility (CASA)



$\frac{1}{4}$  semen  $\frac{3}{4}$  extender

ALLGRADWASH INRA96  
 Centrifugation 1000xg 20 min



1ml supernatant:  
 $\frac{1}{4}$  semen  $\frac{3}{4}$  extender

•Motility (CASA): 1, 2, 4, 8, 24 h  
 •Nuclear Magnetic Resonance: glucose and lactate concentrations: 24h

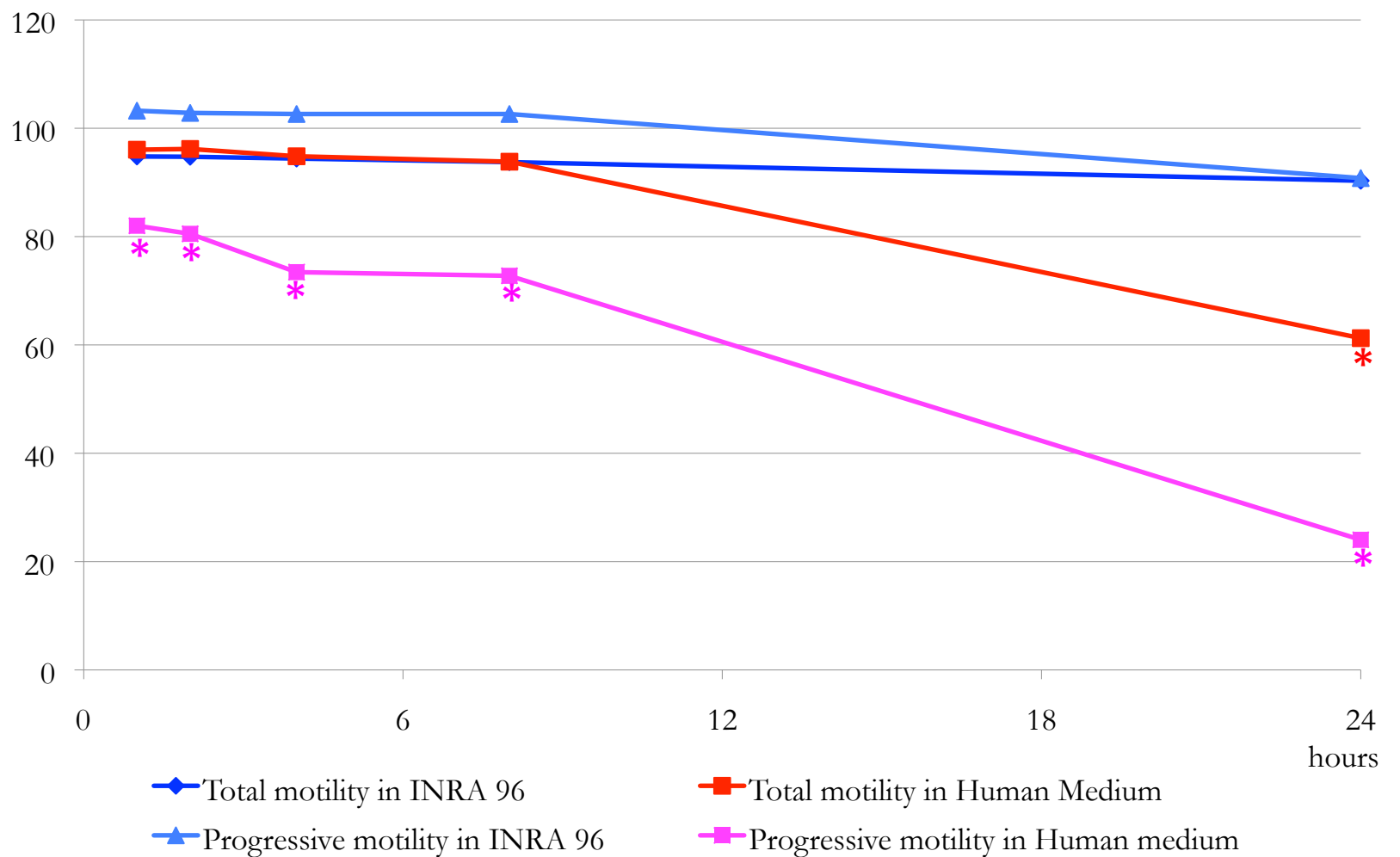
METHODS

Statistics: *Kruskal-Wallis* for median differences

# PRESERVATION OF MOTILITY AT $40 \times 10^6$ SPZ/ML

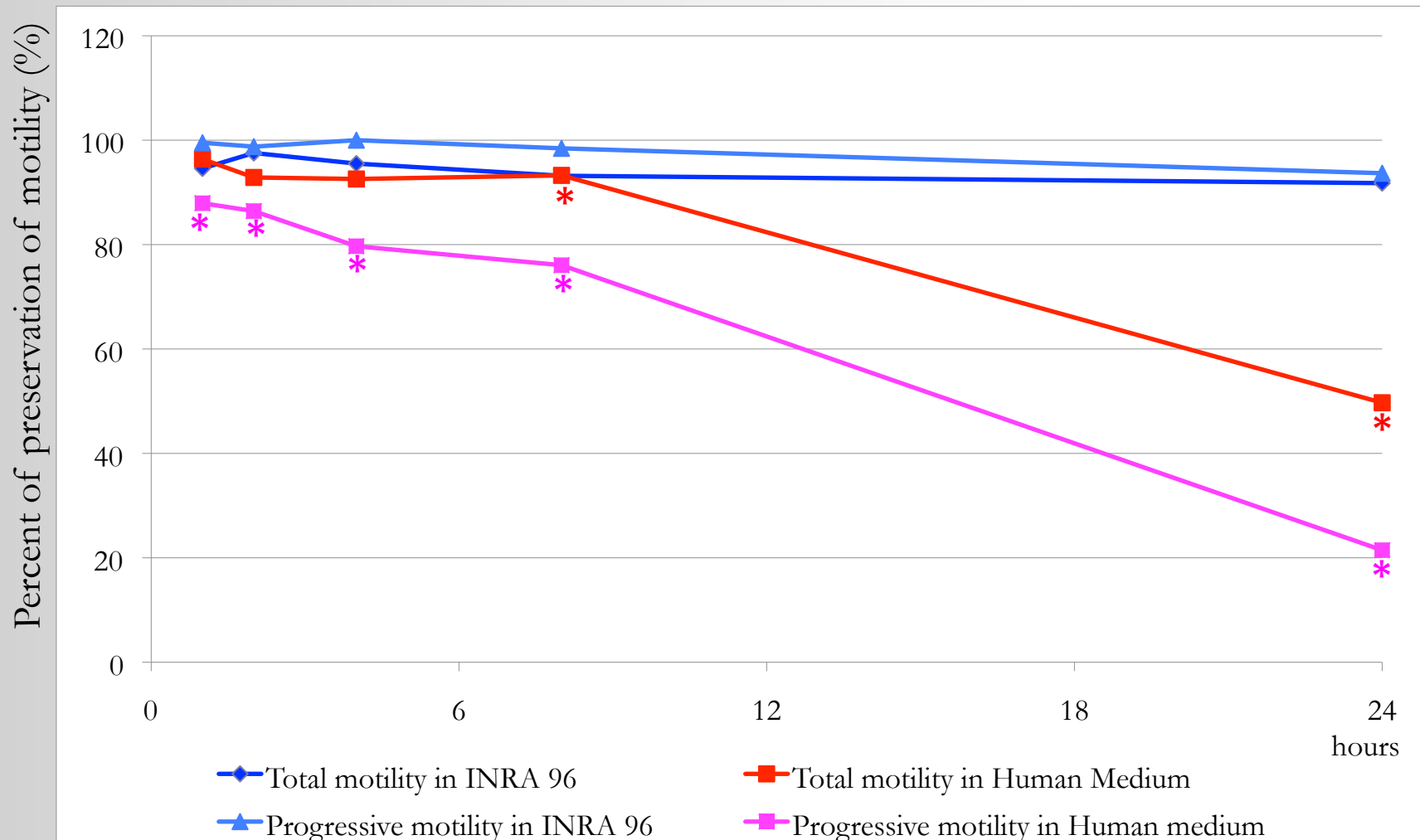
## RESULTS

Percent of preservation of motility (%)



# PRESERVATION OF MOTILITY AT $100 \times 10^6$ SPZ/ML

## RESULTS



- **Lactate after 24 hours:**
  - Higher in Allgradwash<sup>TM</sup> when compared to INRA96
  - No differences for different concentrations in same medium
- **Glucose after 24 hours**
  - Lower in Allgradwash<sup>TM</sup> when compared to INRA96
  - No differences for different concentrations in same medium
- **Median Glucose concentration in INRA96**
  - In native INRA96: 17.86mmol
  - After 24h of semen preservation in INRA96: 25.57mmol

## DISCUSSION

- Human extender doesn't support equine fresh semen storage: progressive motility is rapidly lower
  - ✓ Effect on progressive motility rather than on total
    - ✓ Non-progressive motility previously associated with glycolysis
- Glucose use and lactate production negligible:
  - ✓ No differences between 40 & 100x10<sup>6</sup>spz/ml
- Glucose increased in INRA96 after 24 hours of storage:
  - ✓ Extracellular cleavage of complexe carbohydrates?





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Questions ?

