



INNOCUITY CLINICAL TEST

POLY-CHITO

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OBJECTIVES

- ▶ Poly-Chito gel
- ▶ Polyacrylamid + Chitosan gel for equine joints
- ▶ Innocuity test in equine clinical situations





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CLINICAL TRIAL

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- ▶ 6 horses (3 ThB, 2 TF, 1 Ar) with front fetlock joint disease
- ▶ Diagnosis = static + dynamic locomotor examination + imaging (Xray and US)
- ▶ Poly-Chito gel (PC) in 1 of the 2 front fetlocks at D0
- ▶ 2nd fetlock = control (C)
- ▶ Check at D14
- ▶ Arthroscopy in 2* of the 6 horses



CLINICAL TRIAL – D0 AND D14

- ▶ Records both fetlocks before (D0) and after joint introduction of Novicaps gel (D14)
 - ▶ lameness and pain,
 - ▶ joint size and effusion (fetlock measurements),
 - ▶ flexion amplitude (goniometry),
 - ▶ joint heatness (thermography),
 - ▶ capsule thickness
- ▶ Synovial fluid sampled for viscosity and biological parameters (WBC, TP, pH), + volume





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CLINICAL RESULTS

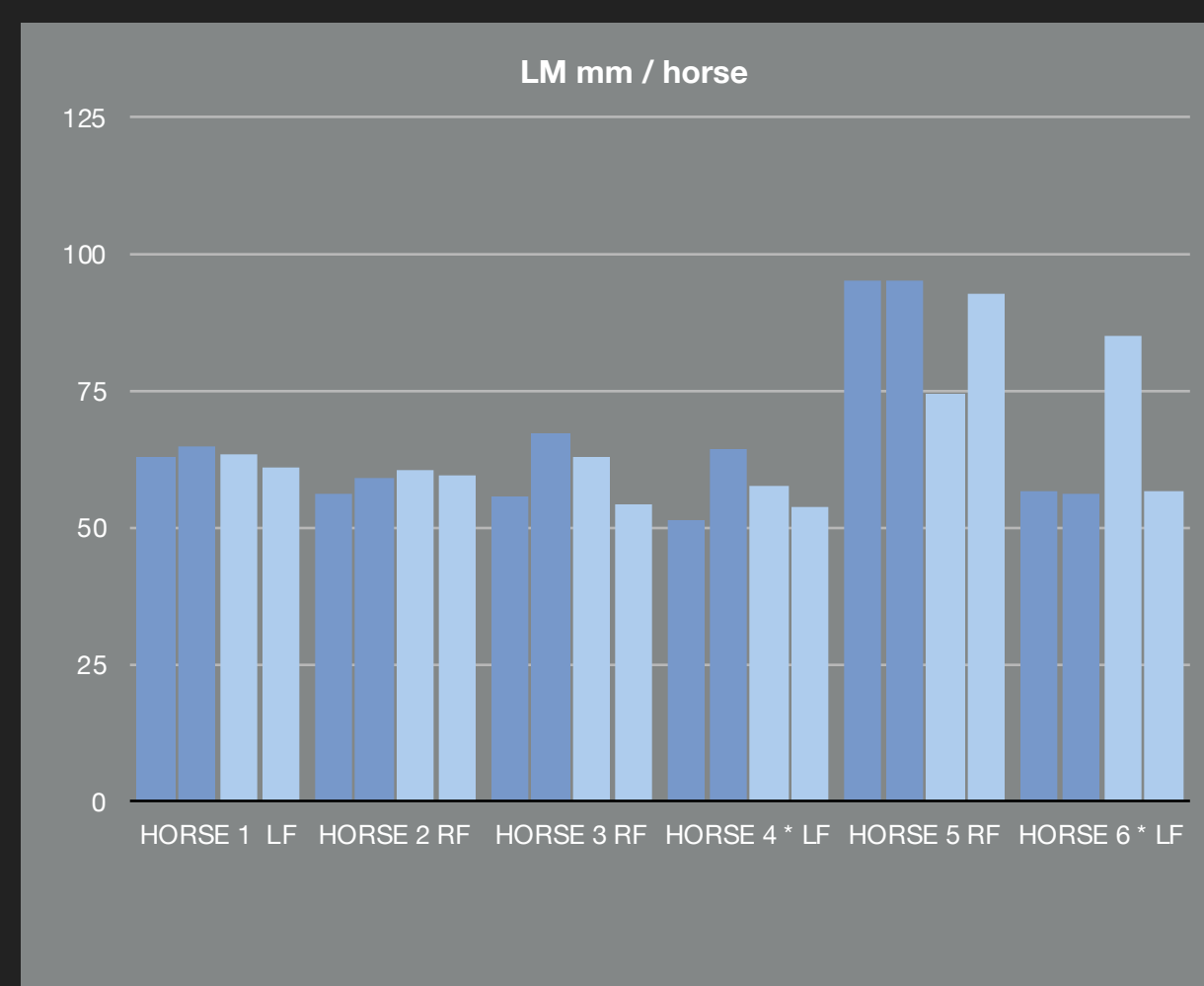
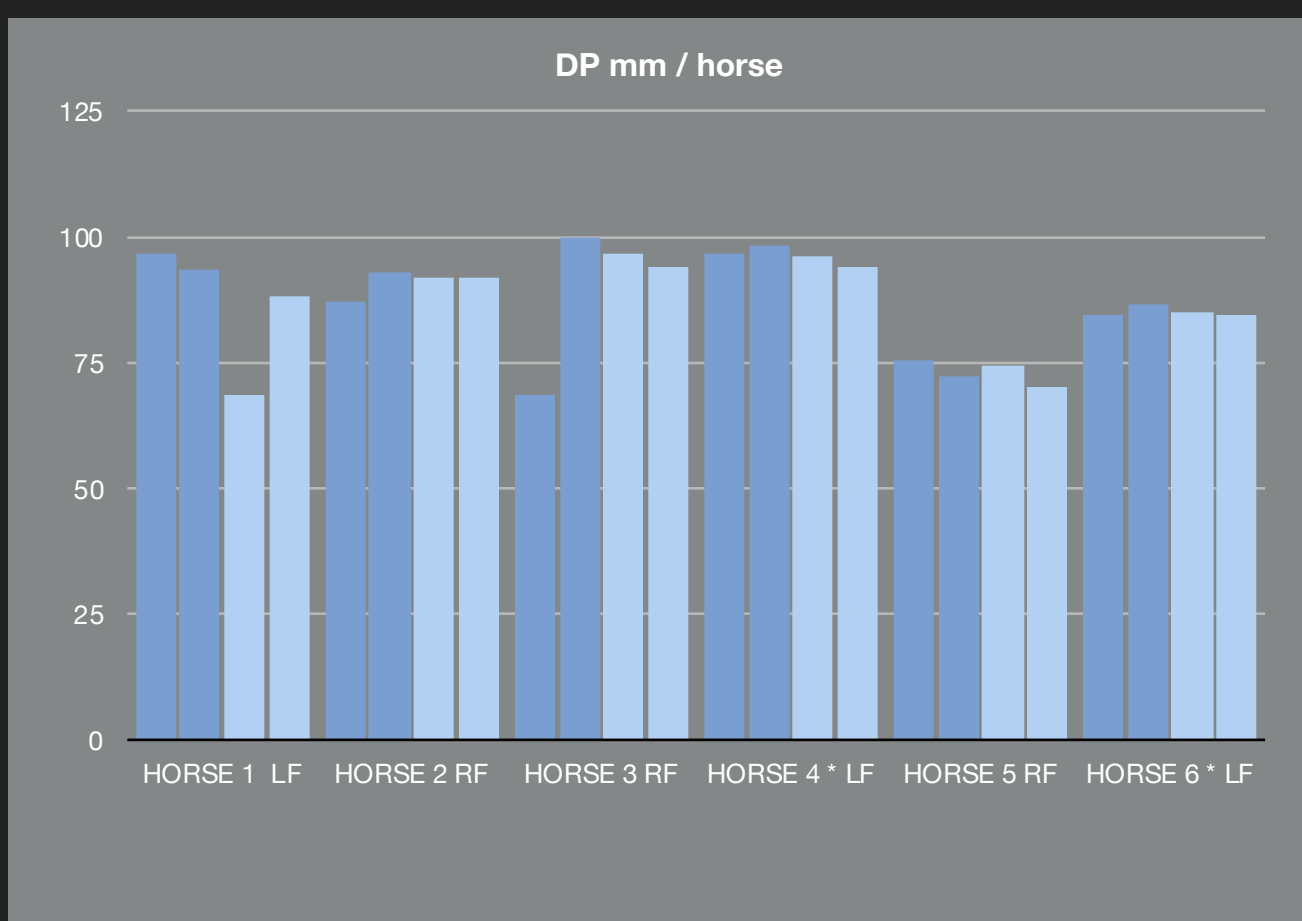
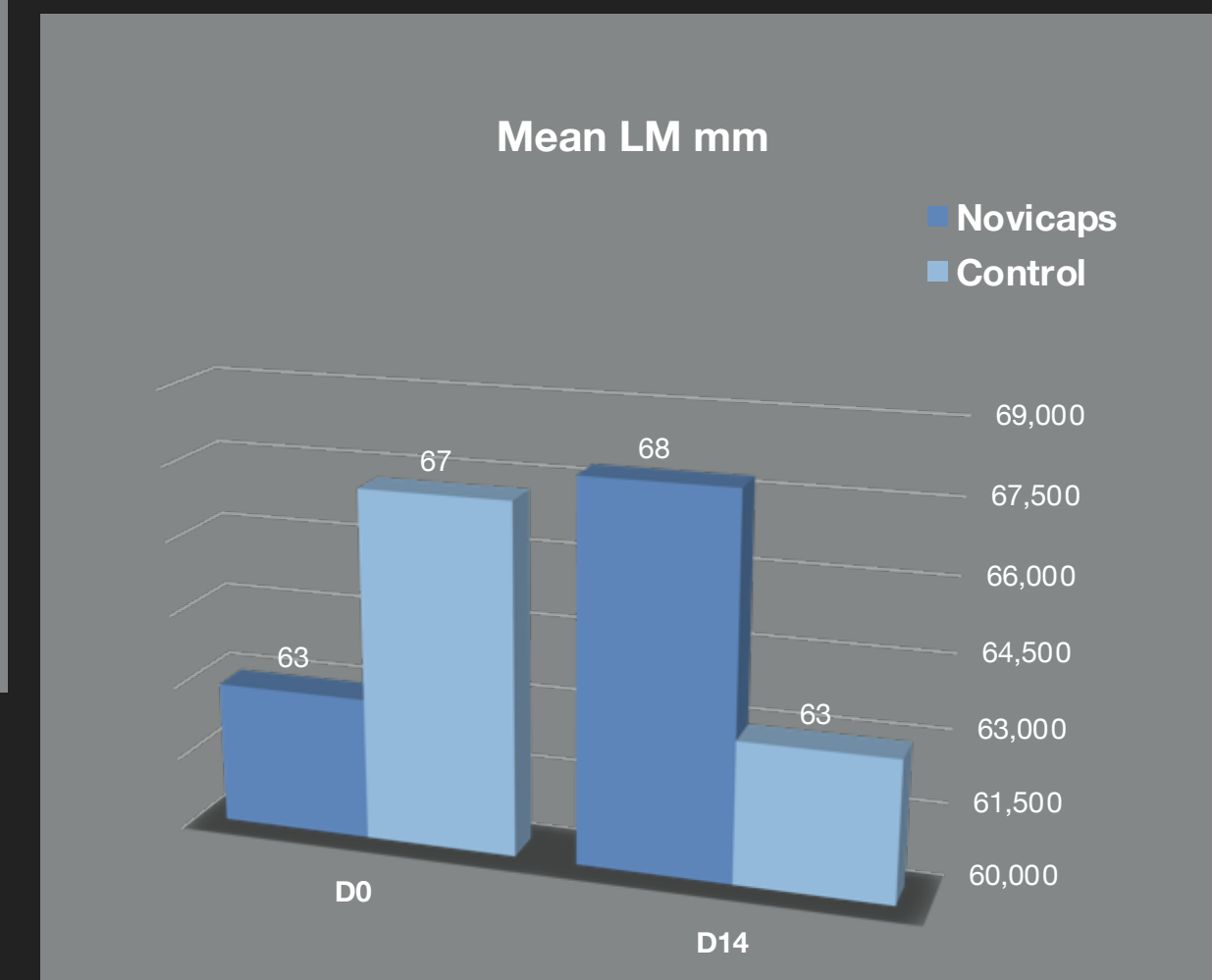
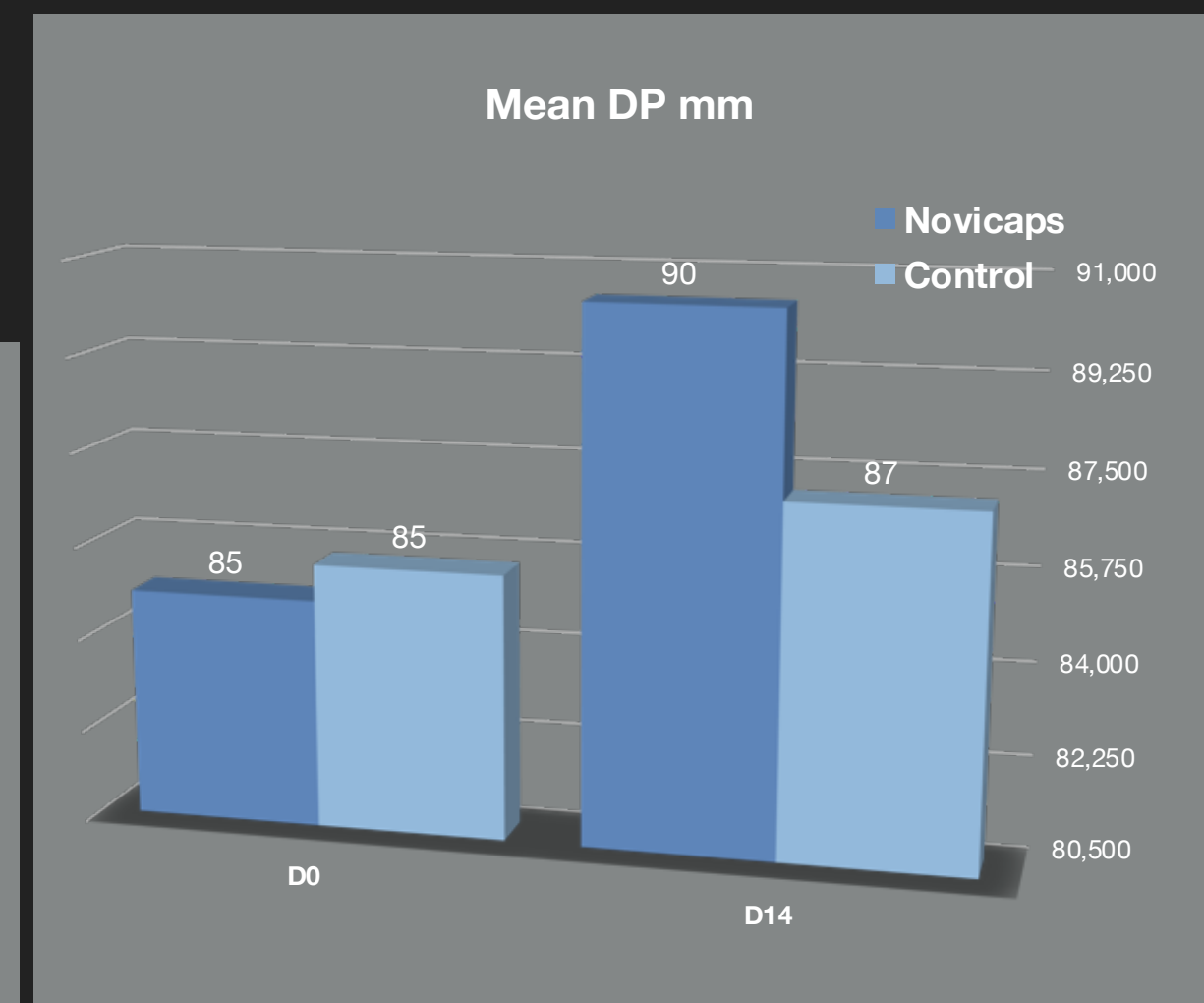
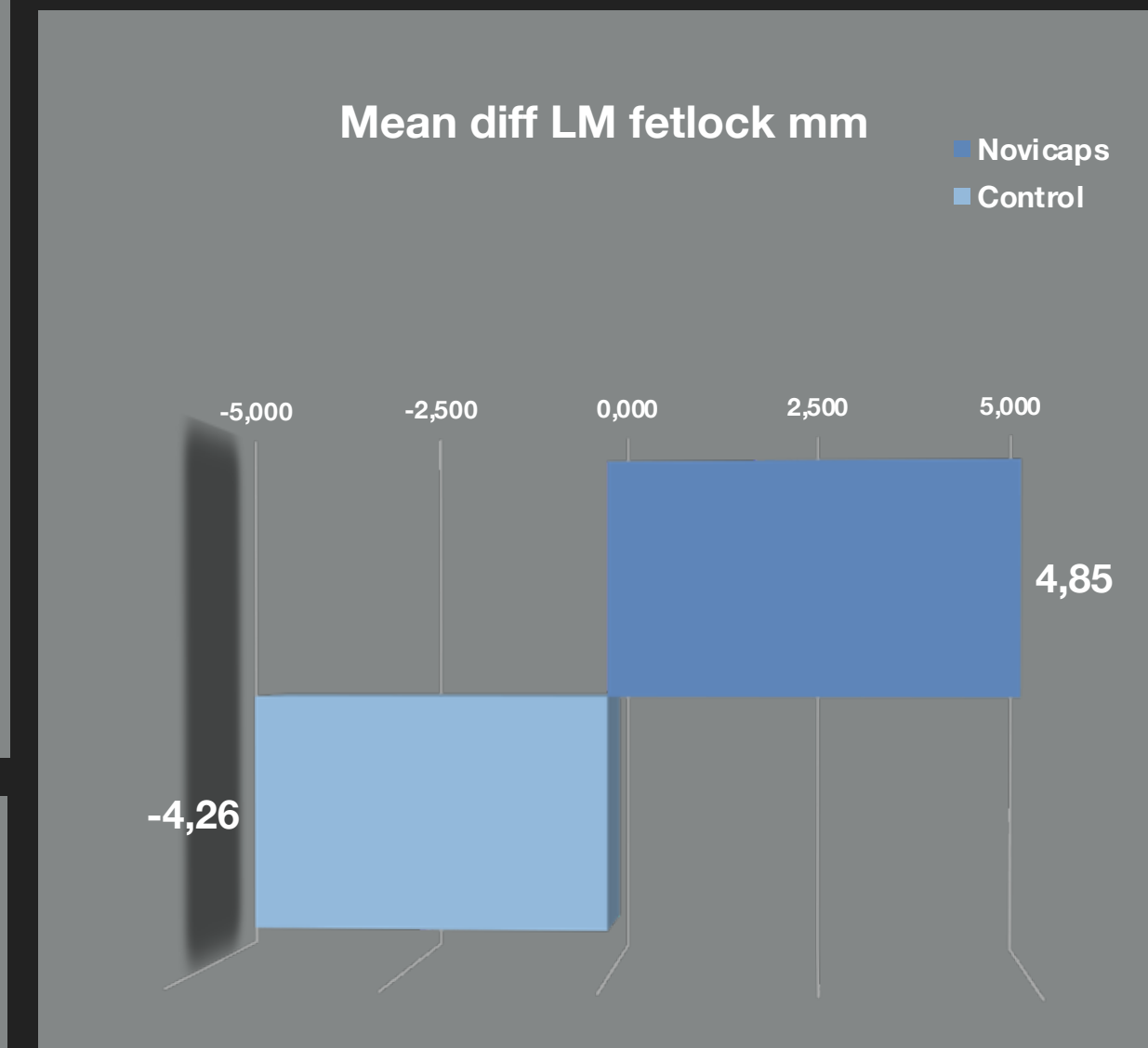
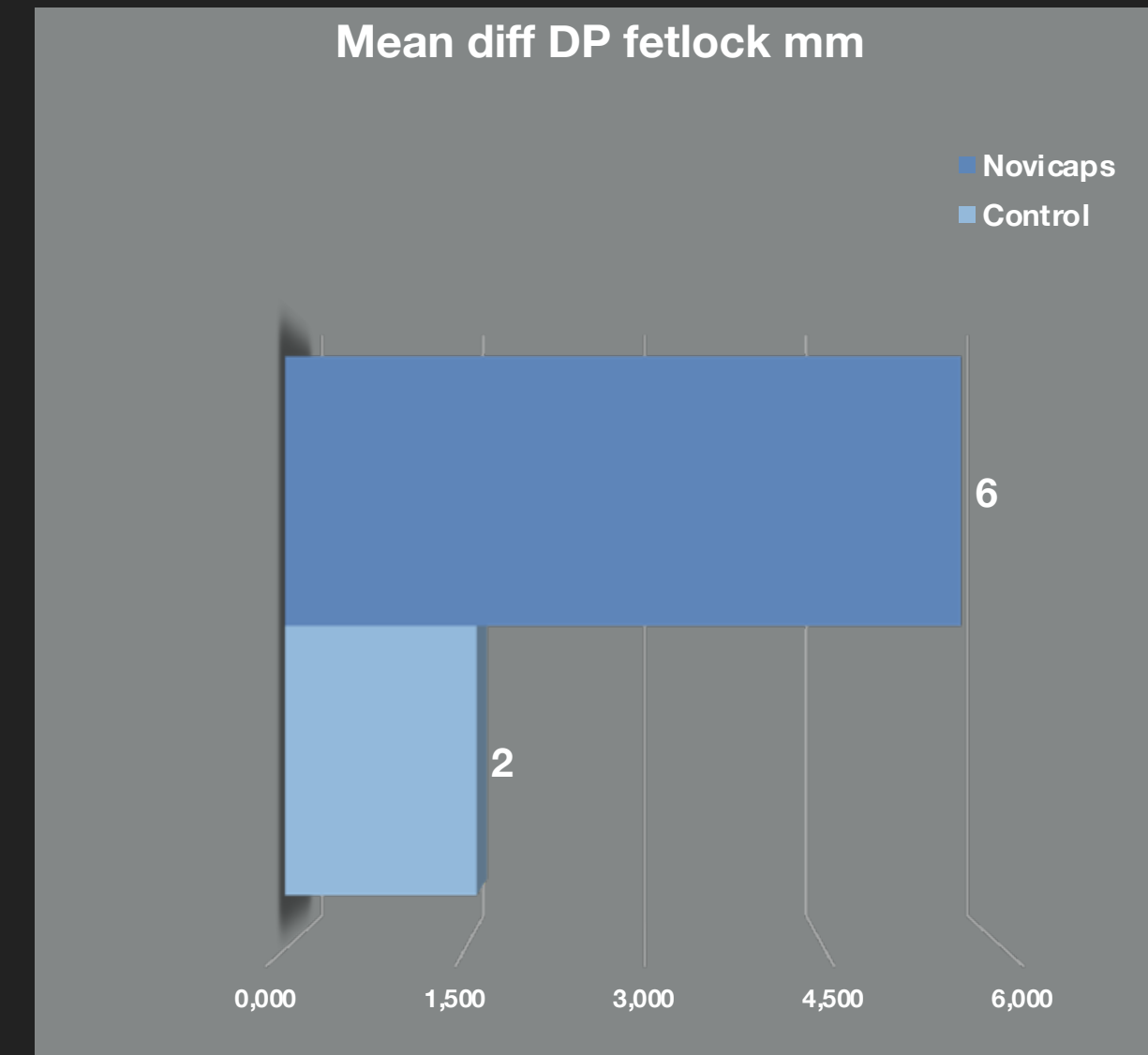
RESULTS – LAMENESS AND PAIN

- ▶ No adverse effect after PC joint administration
- ▶ No lame horse after PC joint administration
- ▶ No lameness score worsening
- ▶ No pain in joint flexion



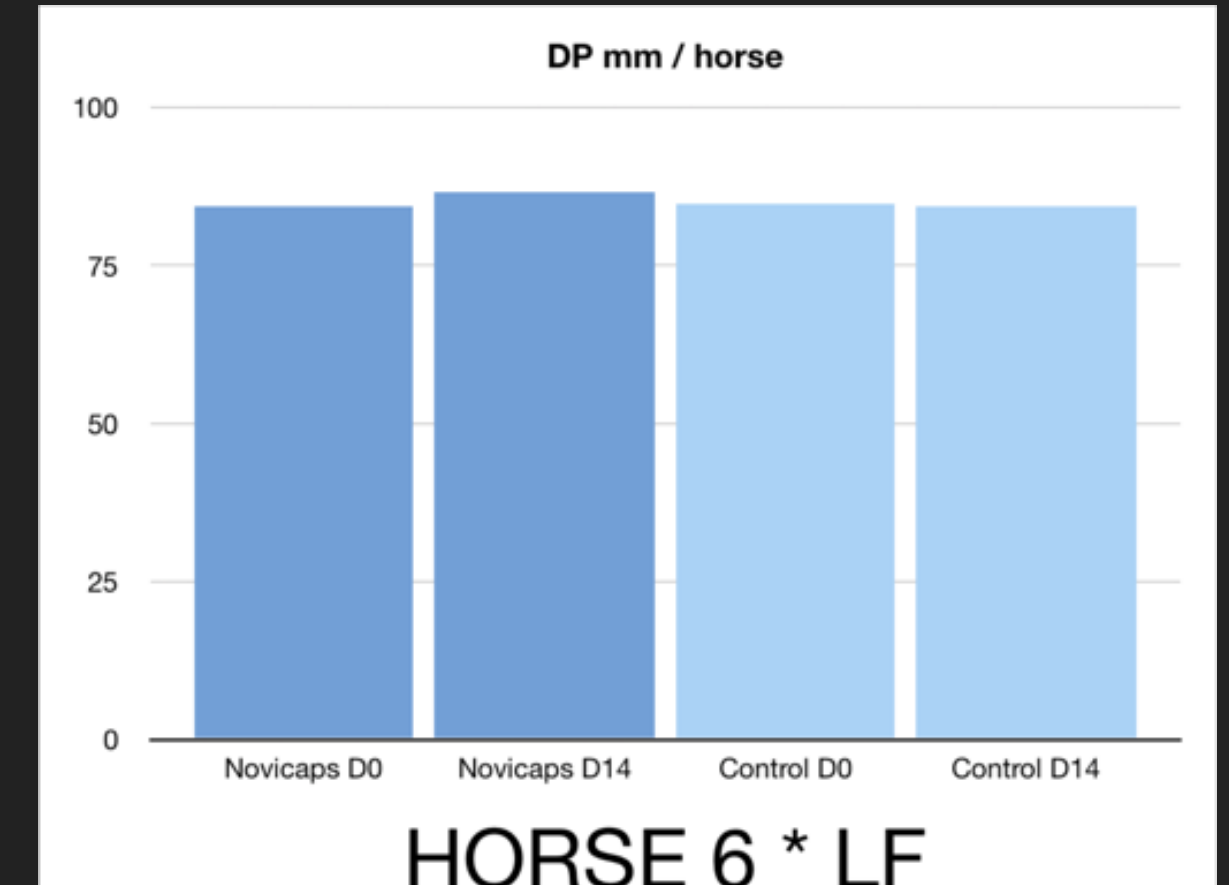
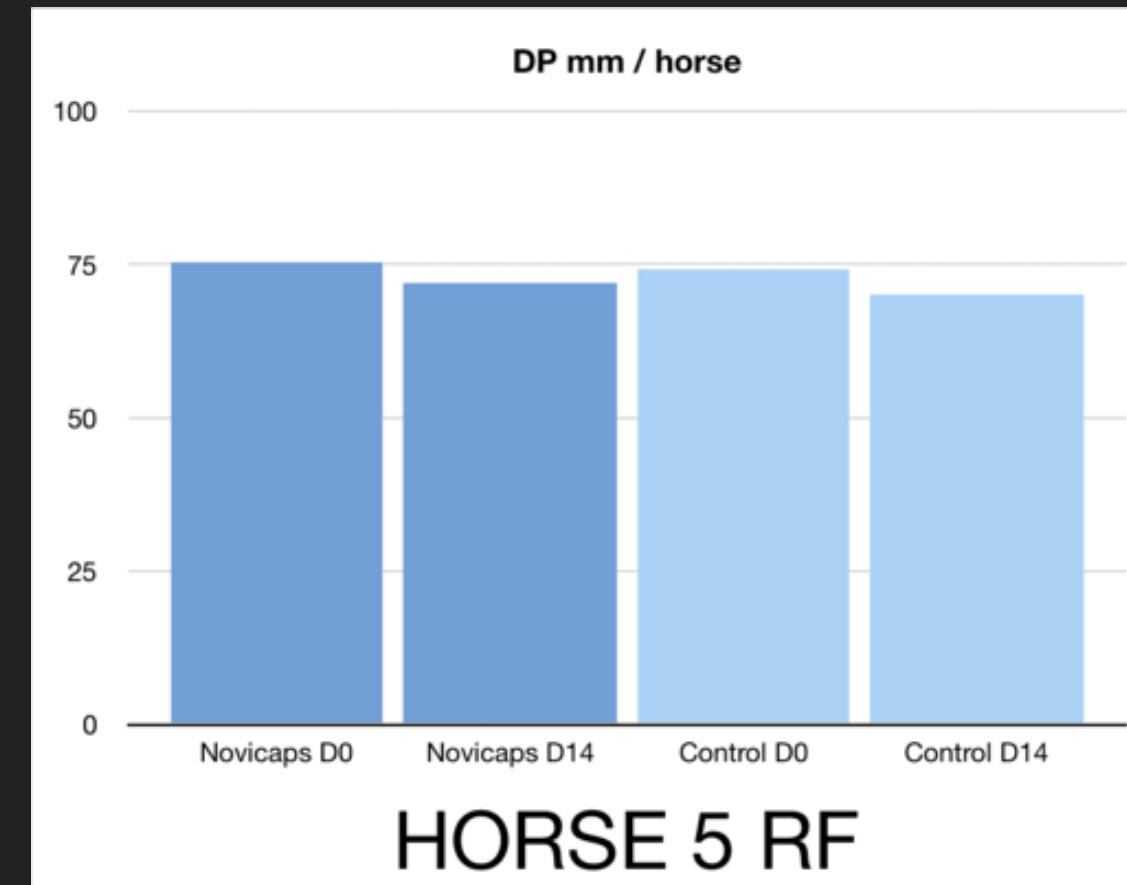
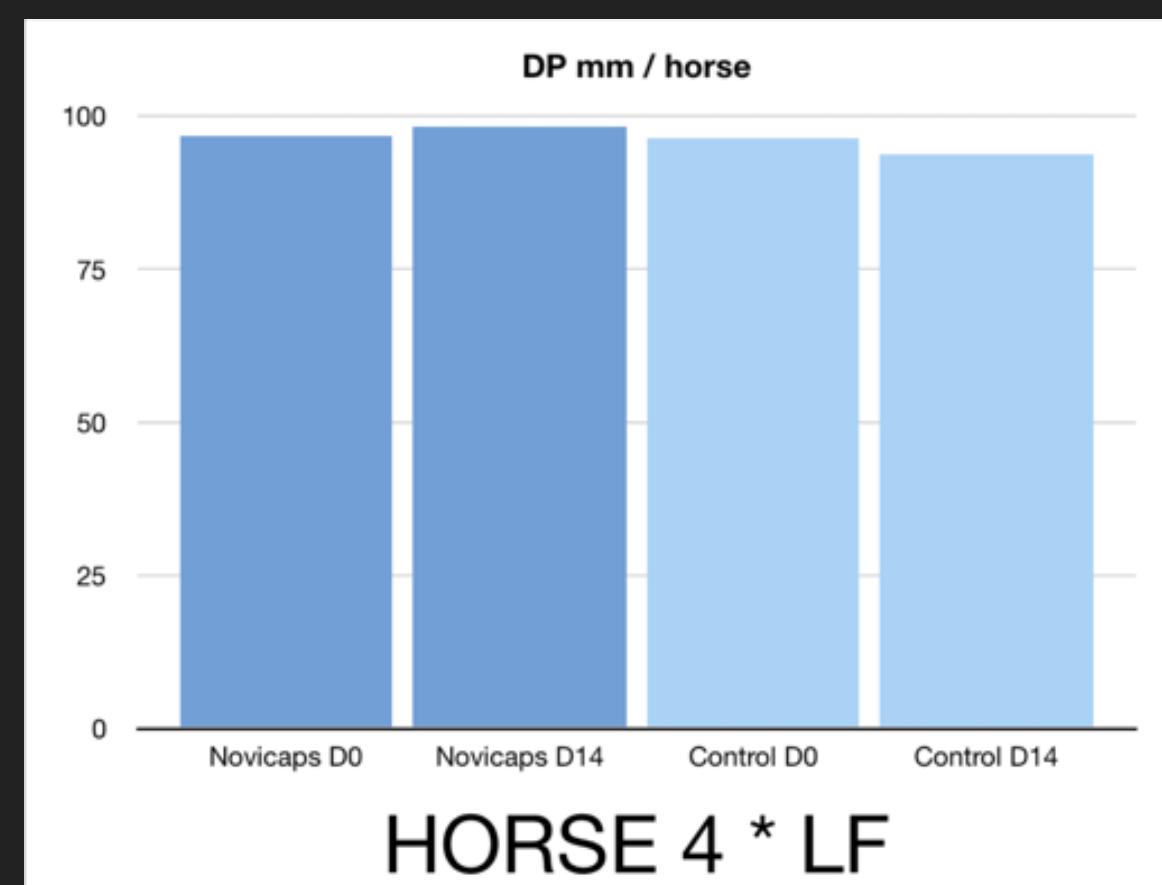
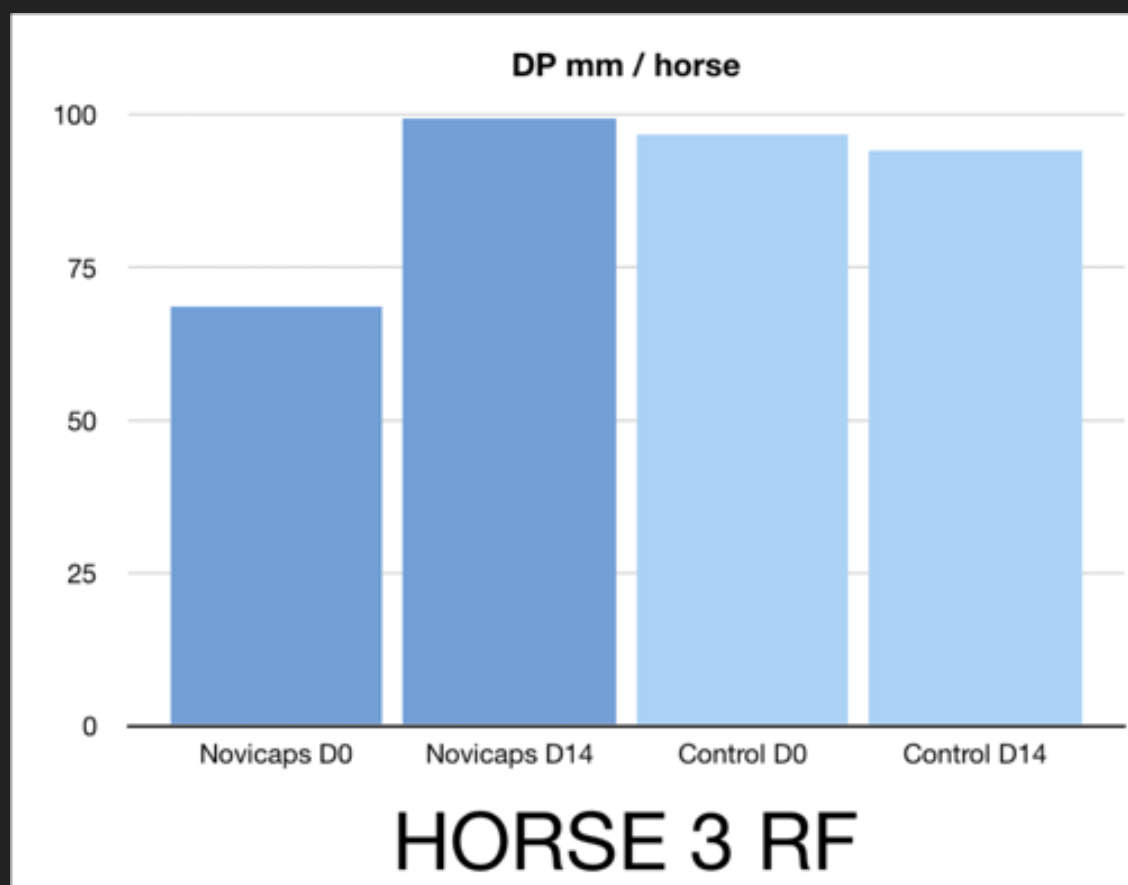
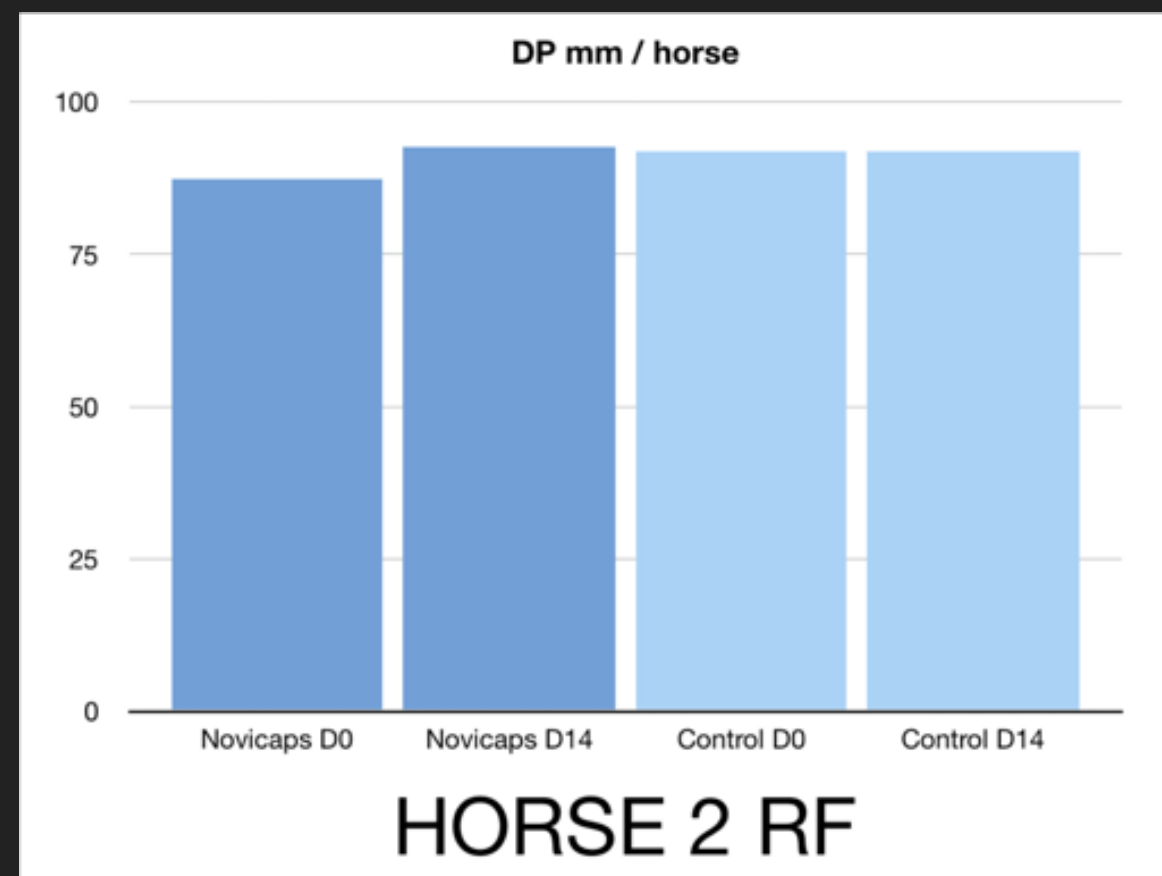
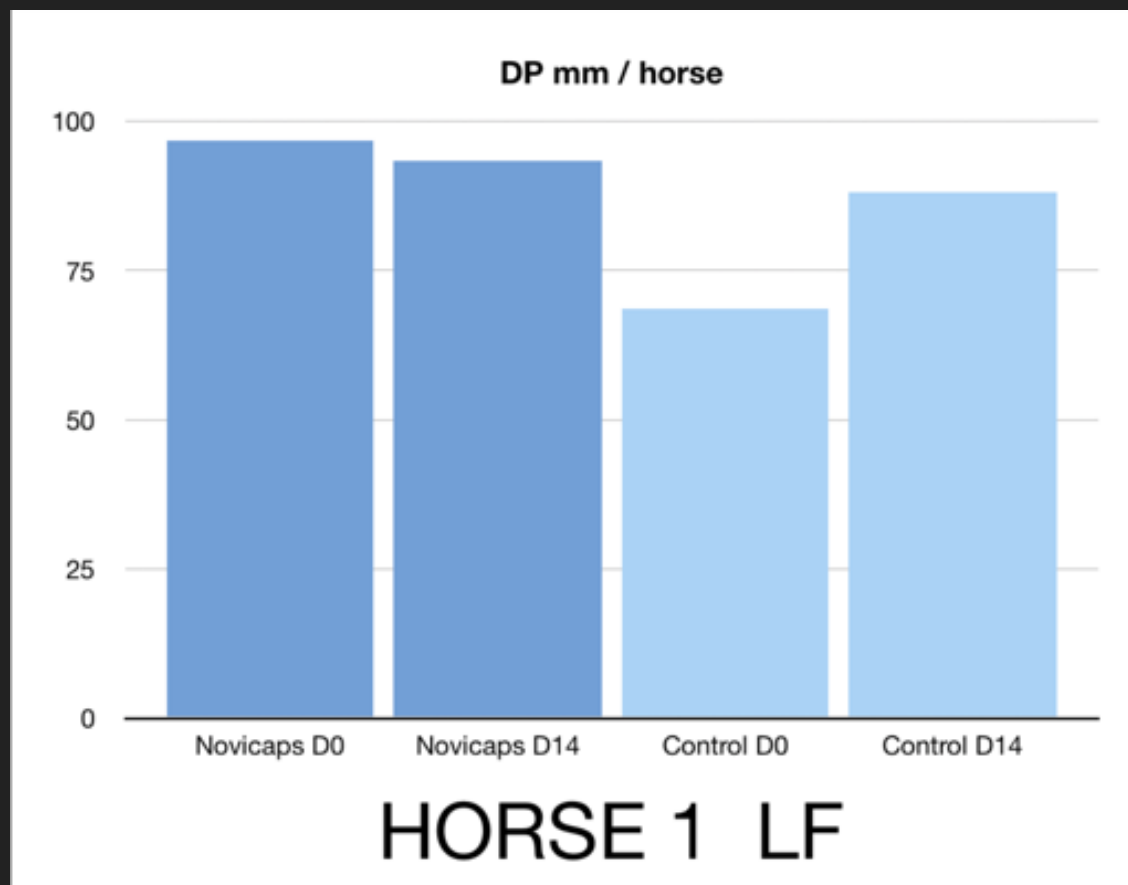
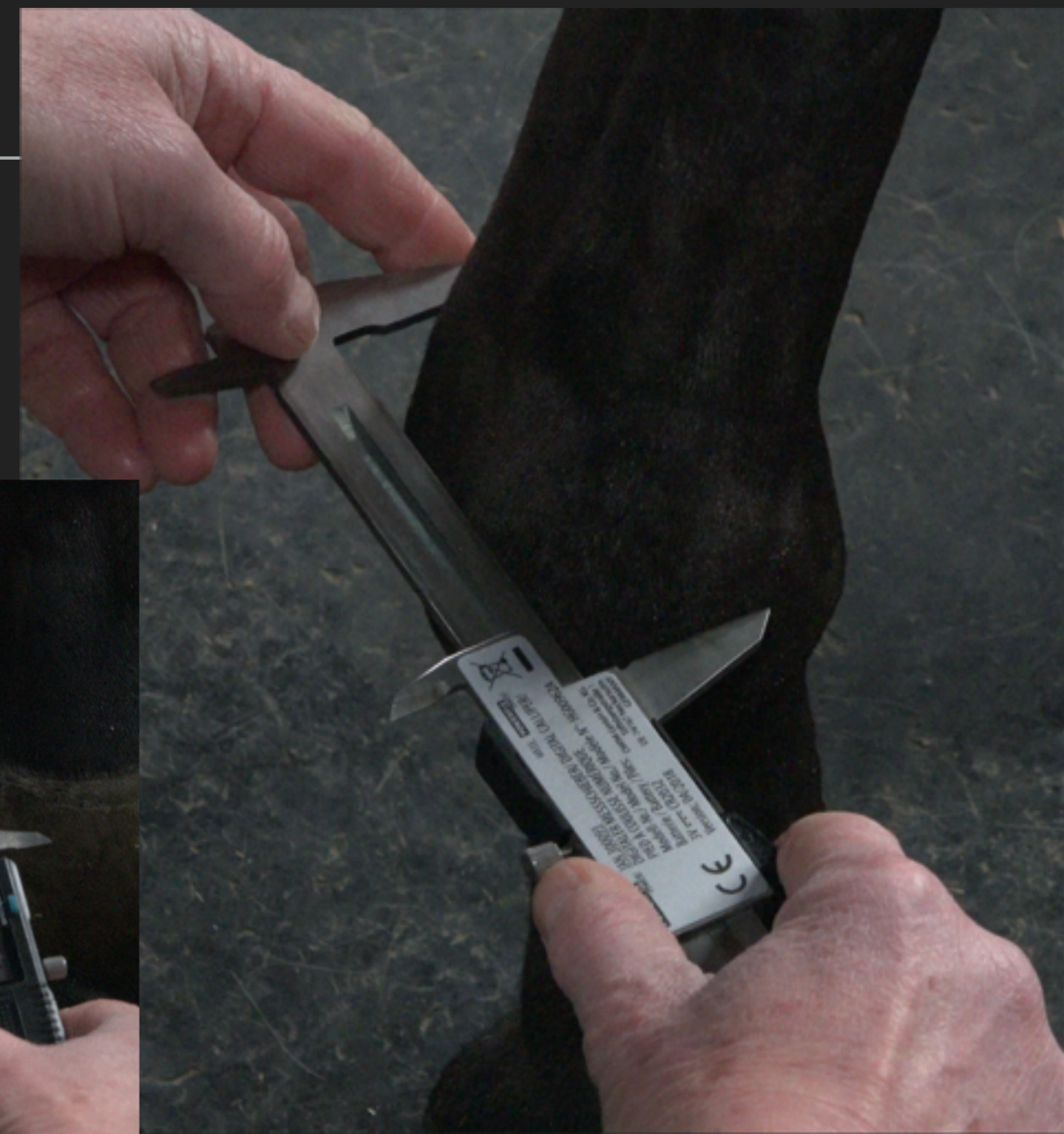
RESULTS – JOINT SIZE AND EFFUSION

- ▶ Increased DP and LM fetlocks sizes
 - ▶ DP increased +5,6 // +1,6 mm
 - ▶ LM increased +4,85 // -4,26 mm



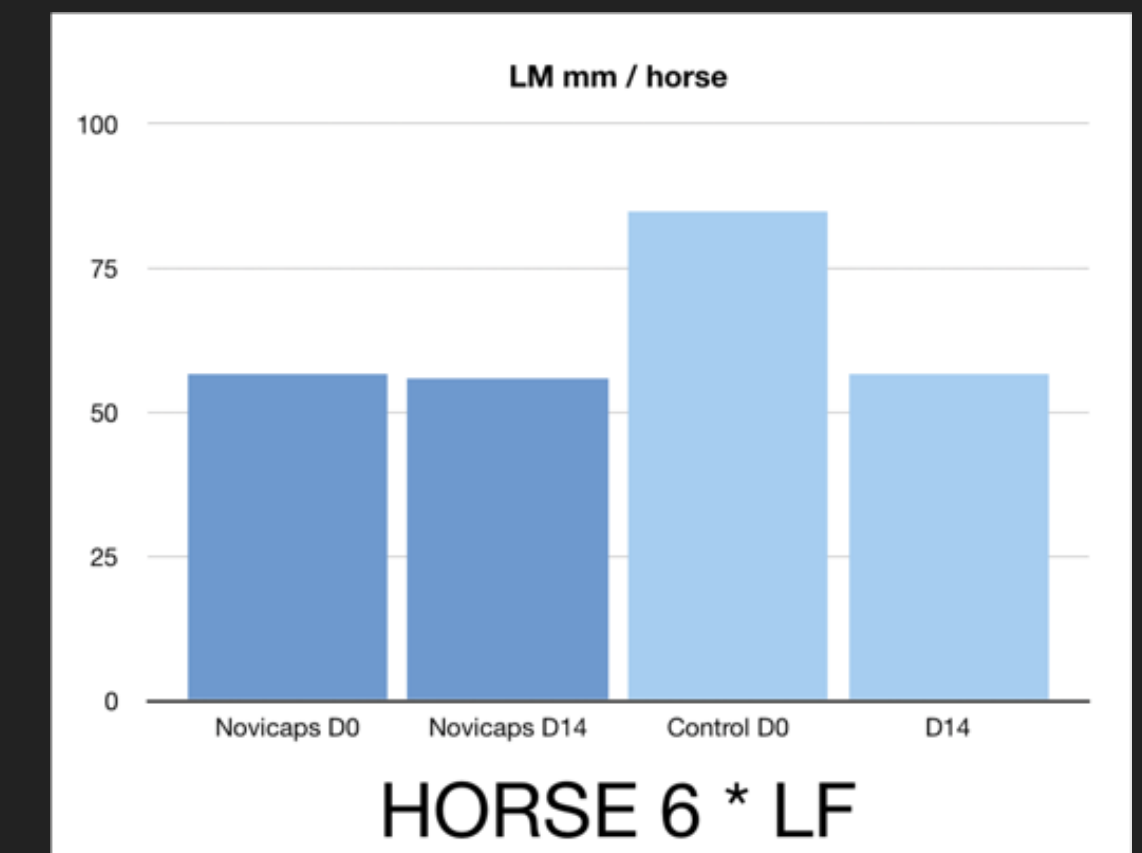
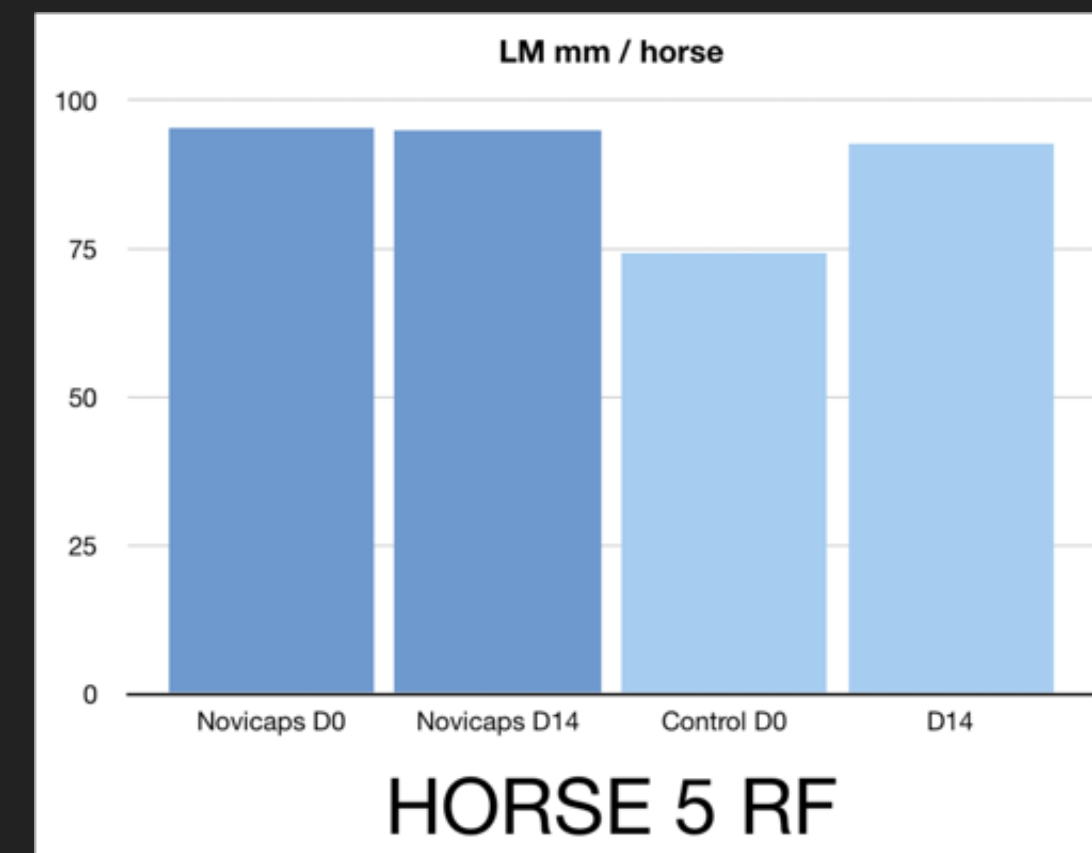
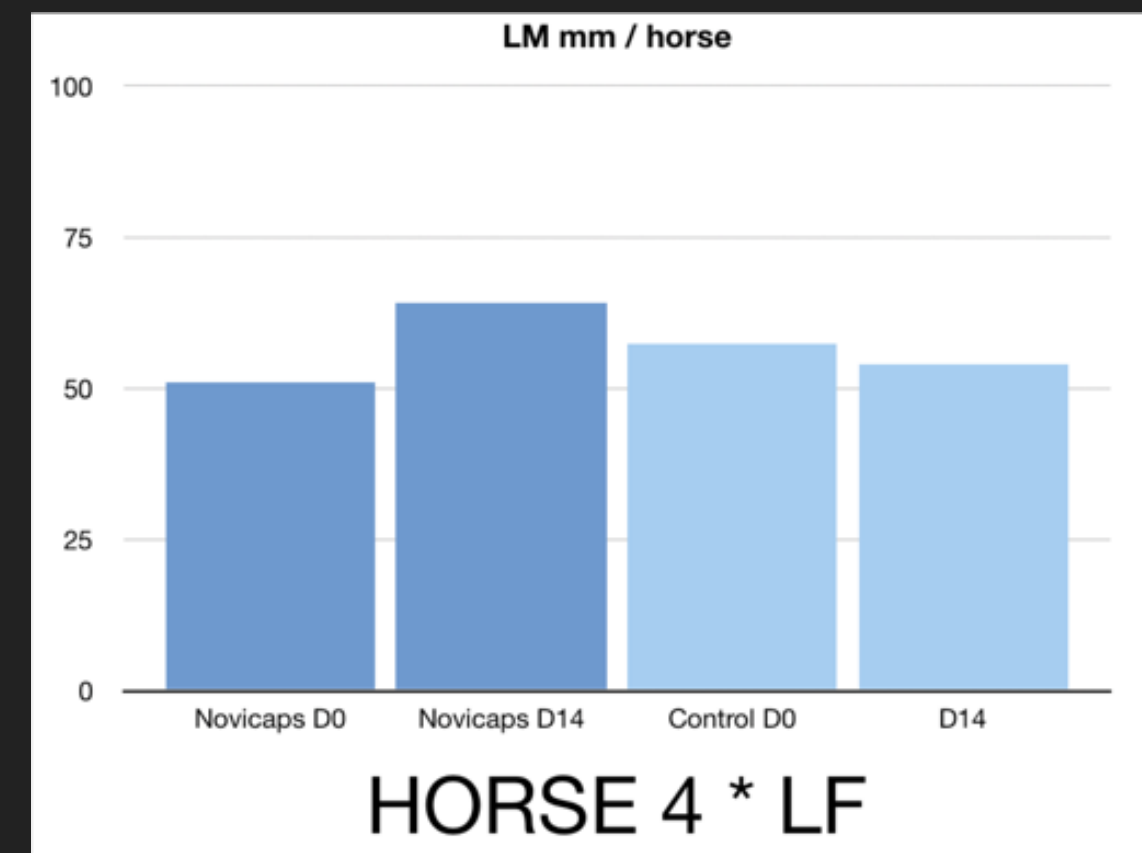
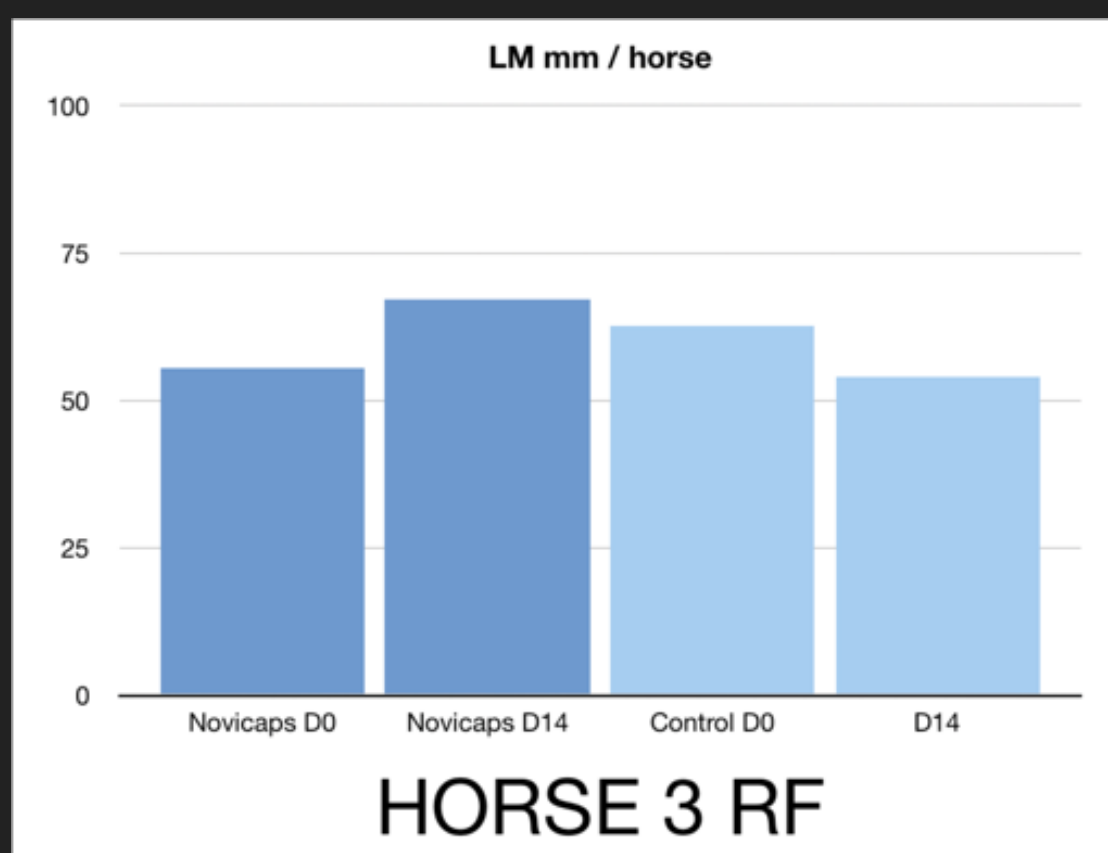
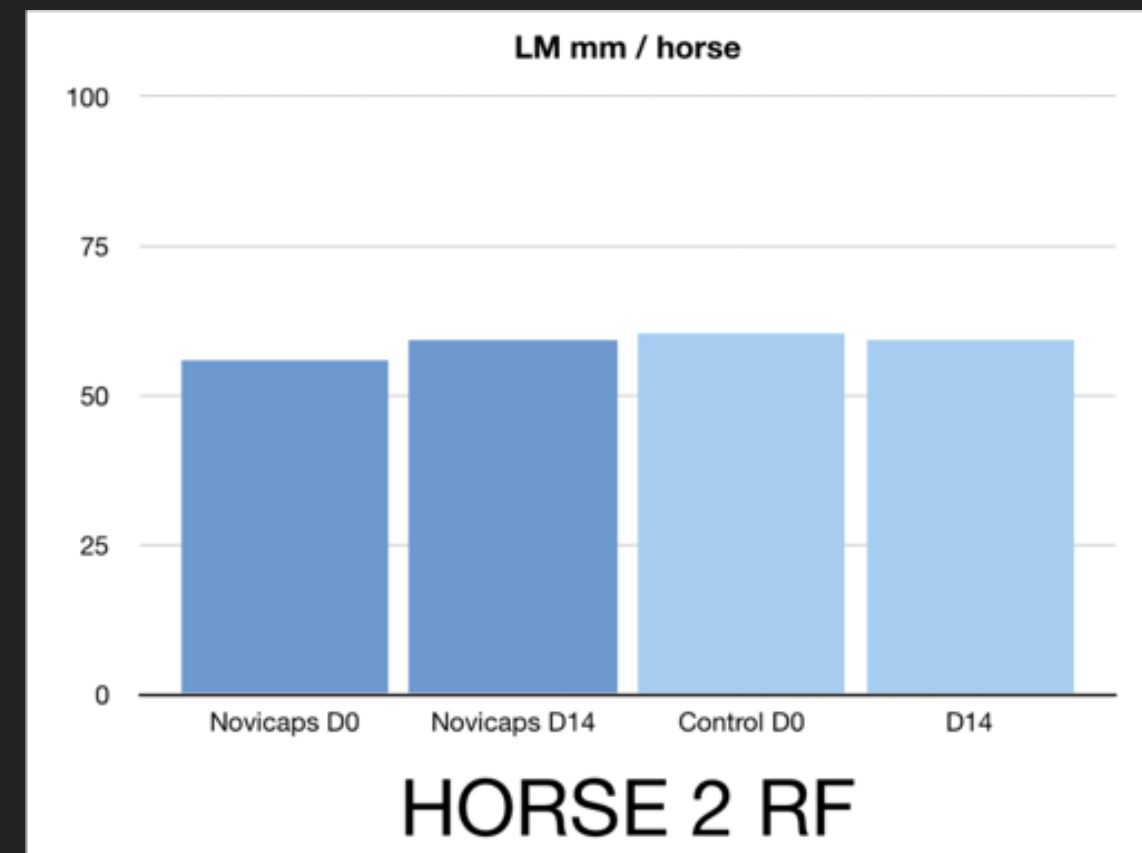
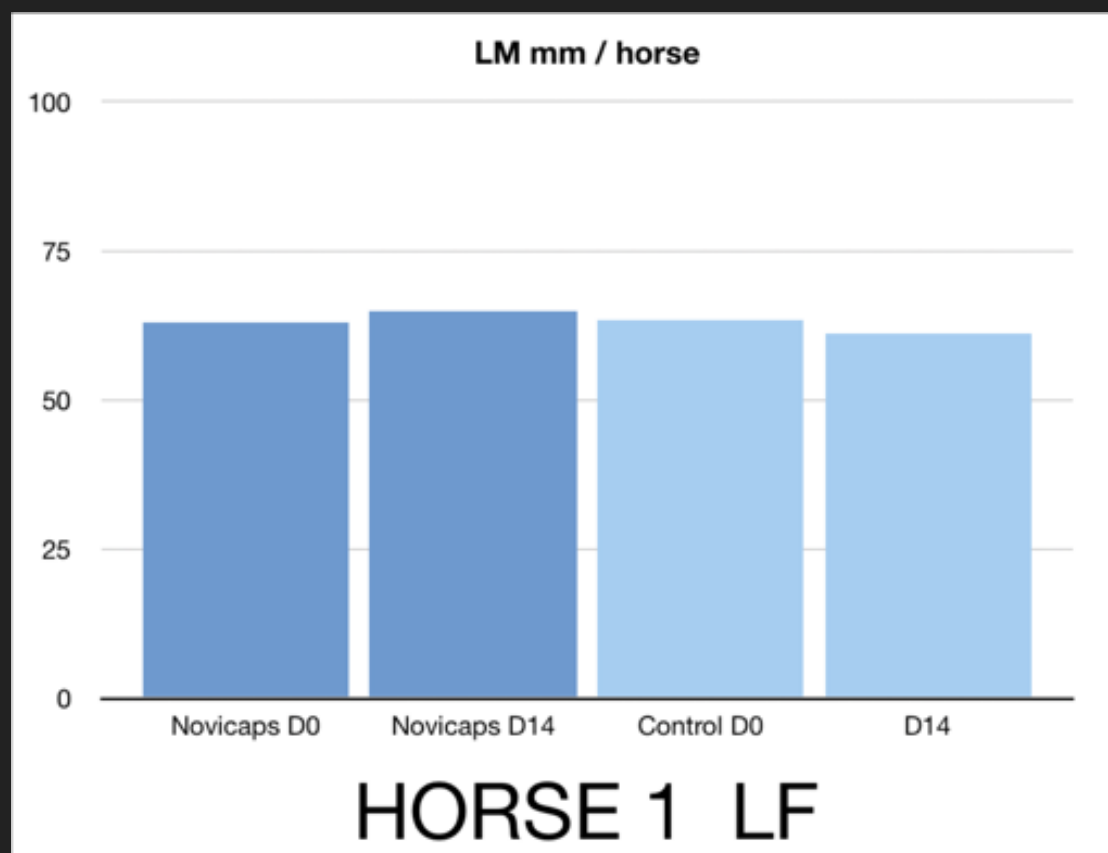
RESULTS – DP FETLOCK SIZE / HORSE

► Increased sizes PC and C



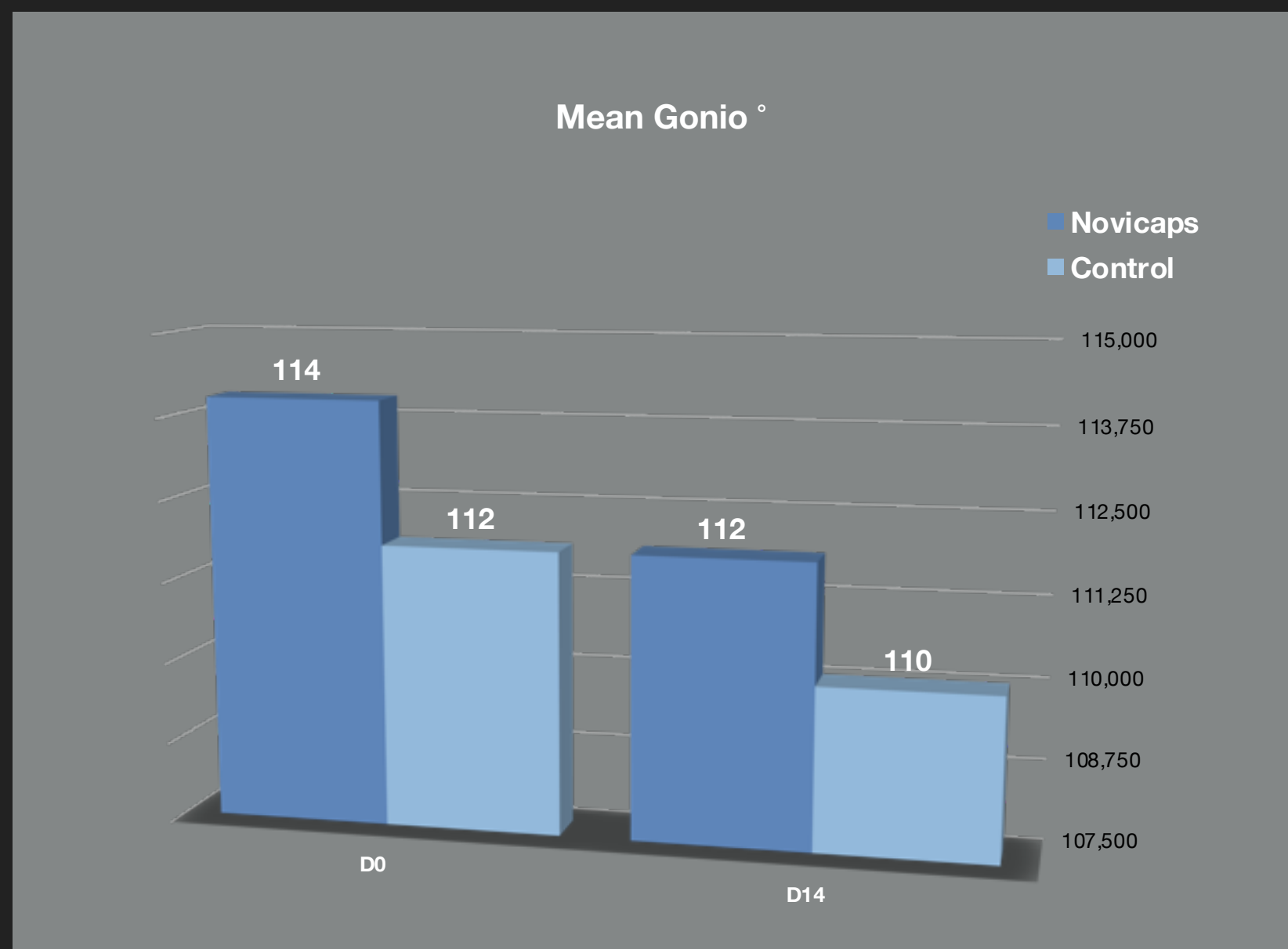
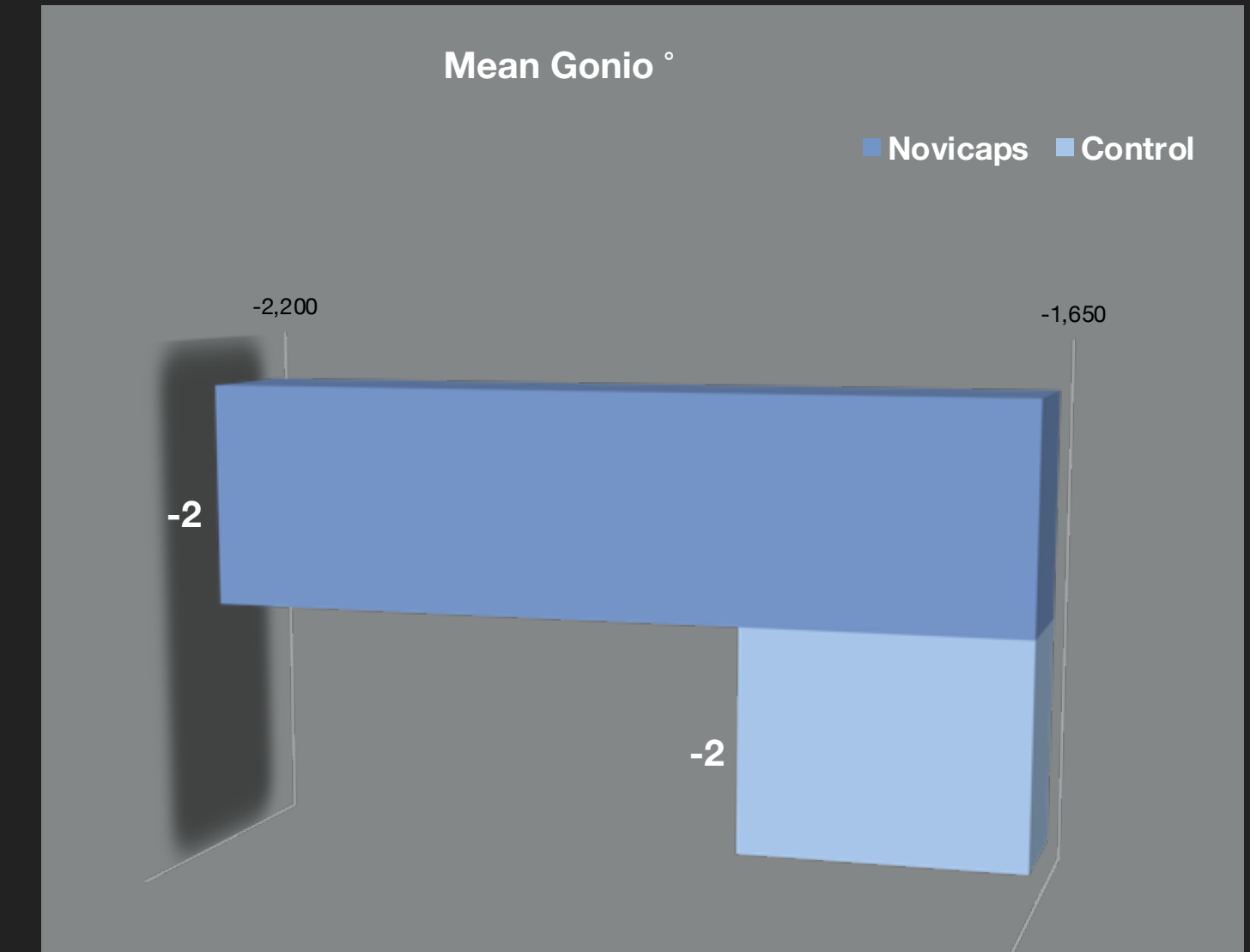
RESULTS – LM SIZE

► LM fetlocks measurements / horse



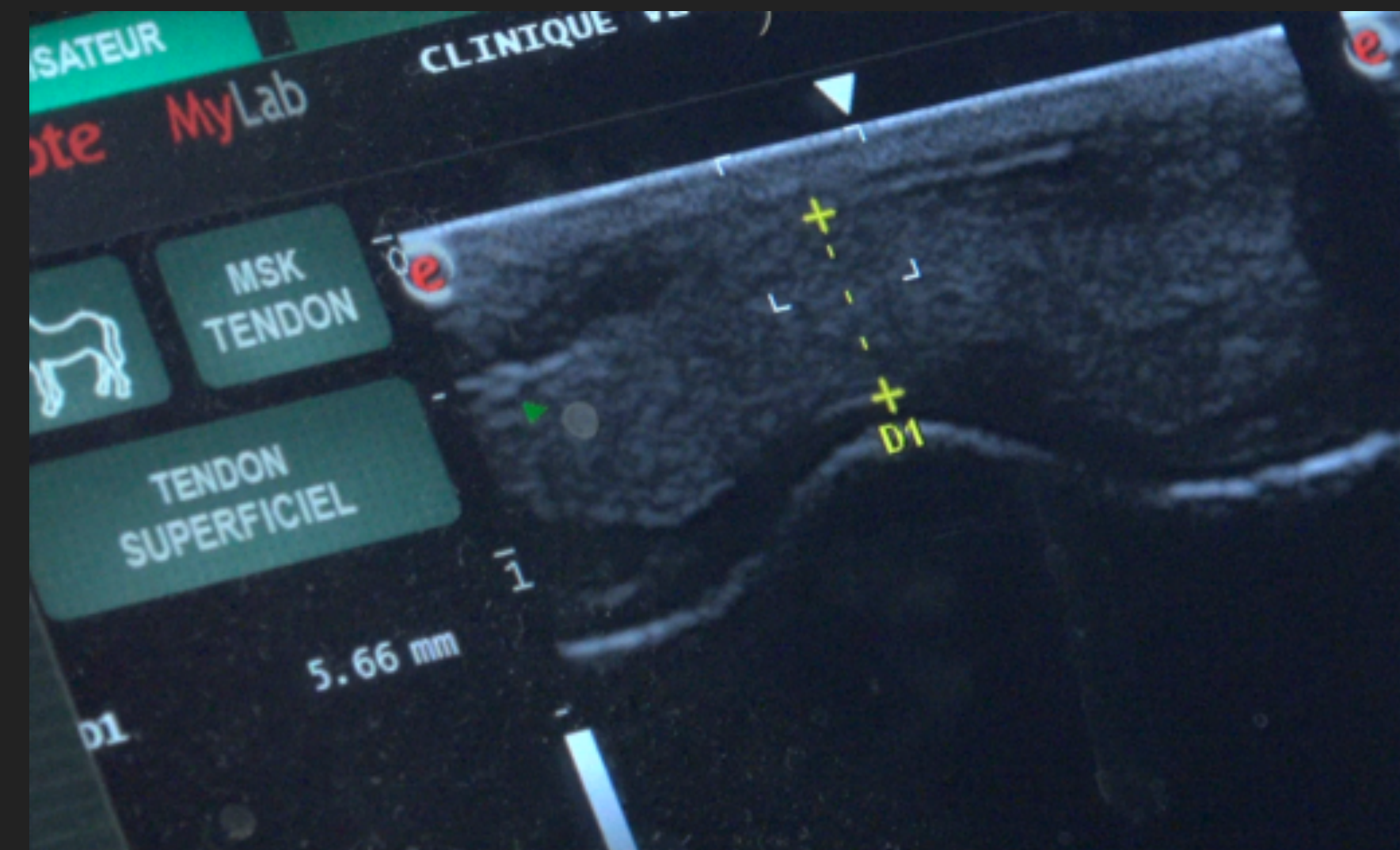
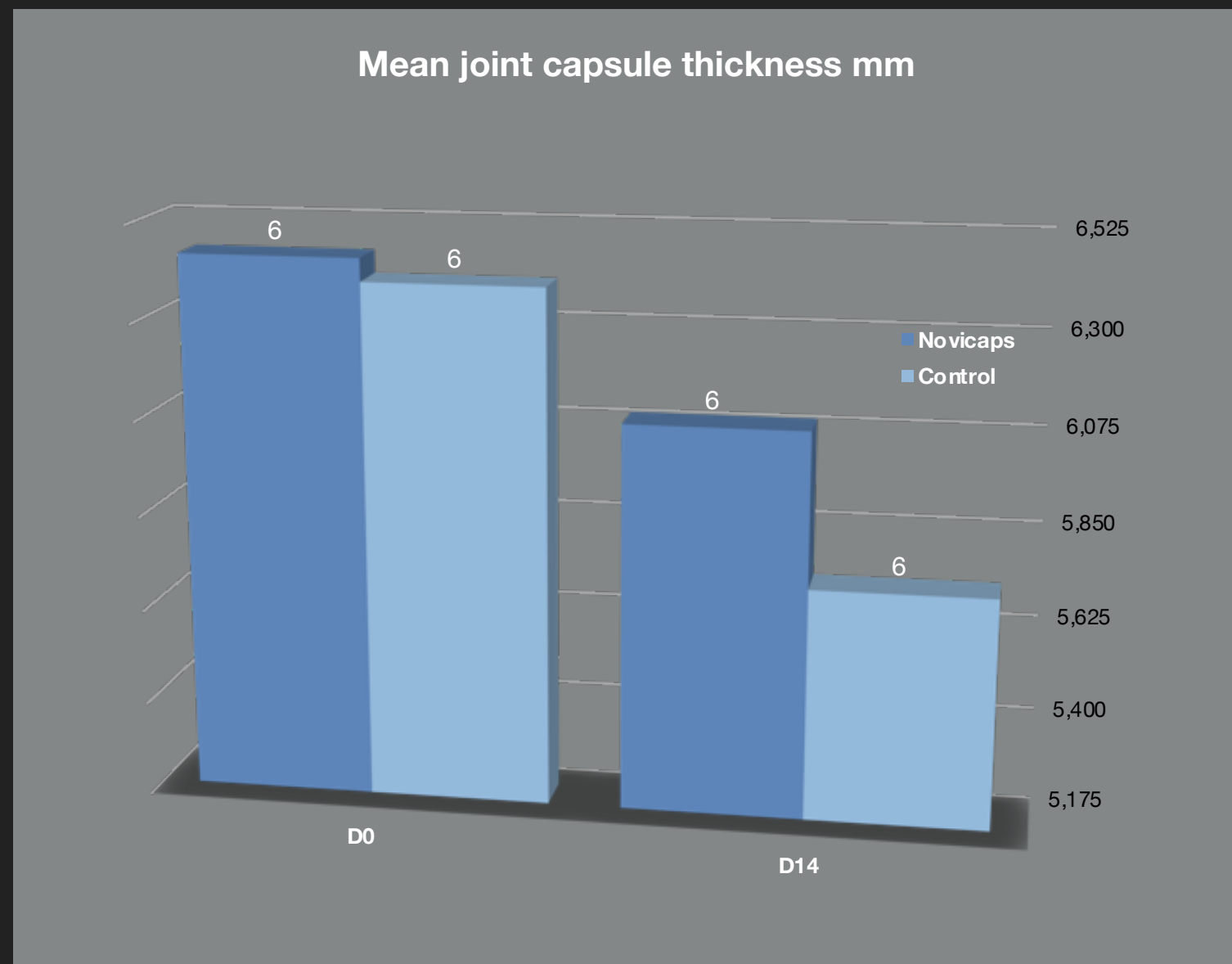
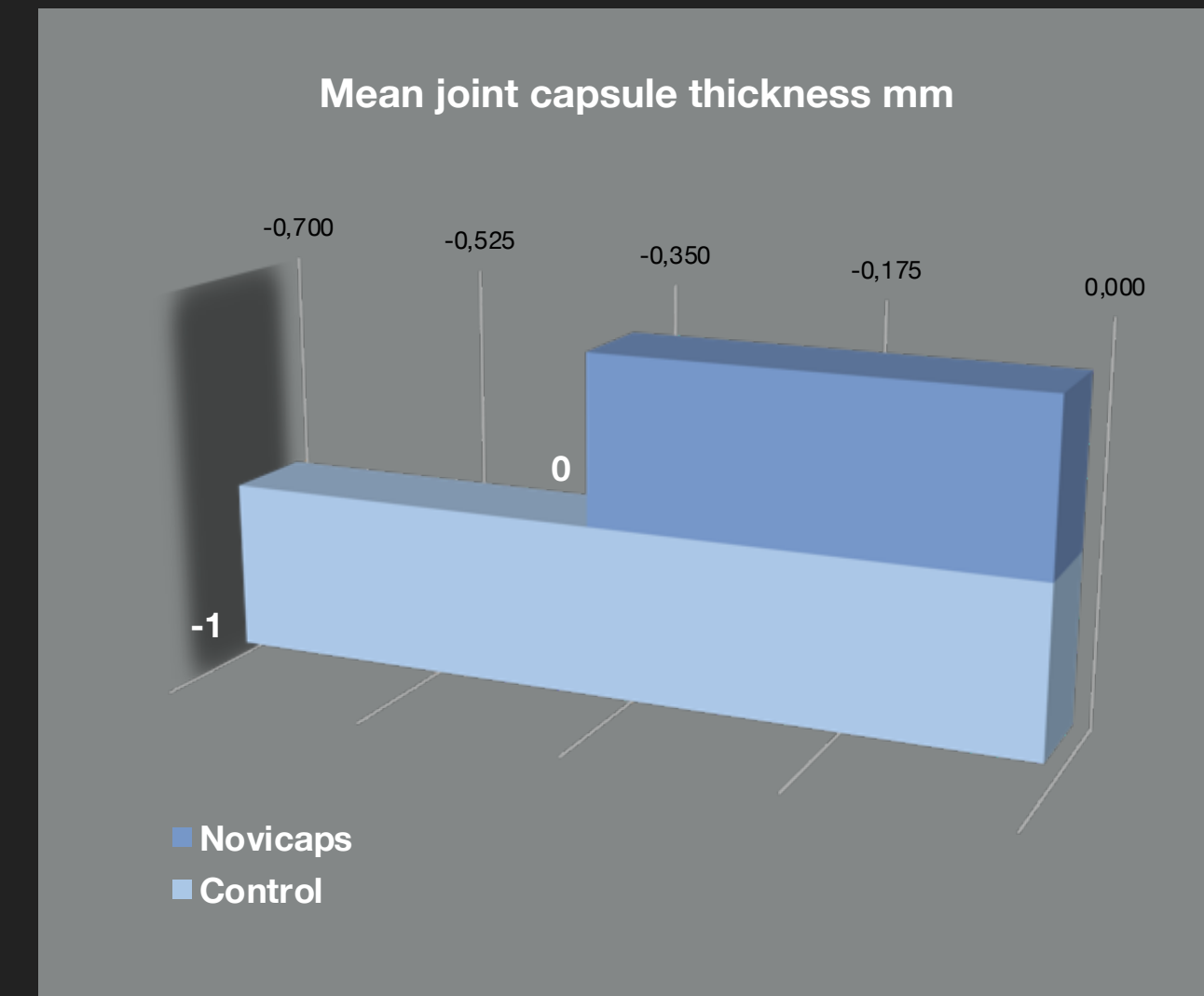
RESULTS – JOINT FLEXION AMPLITUDE (GONIOMETRY)

- ▶ No bad effect on joint flexion
- ▶ Improvement of joint flexion at D14
 - ▶ Decreased angle of joint flexion = more flexion



RESULTS – JOINT CAPSULE THICKNESS (ULTRASONOGRAPHY)

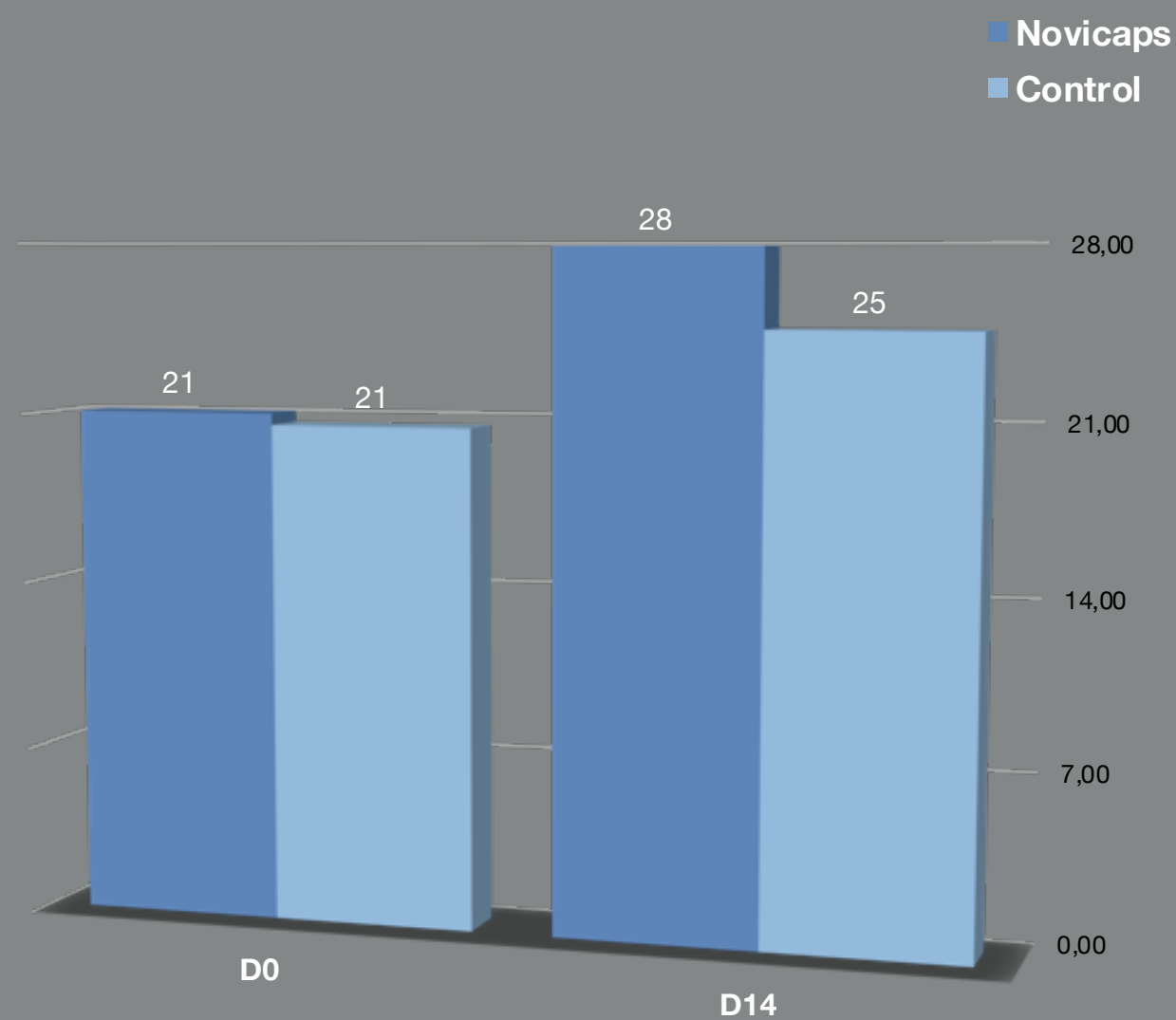
- ▶ No bad effect on joint capsule
- ▶ Improvement of capsule thickness at D14
 - ▶ Decreased capsule thickness



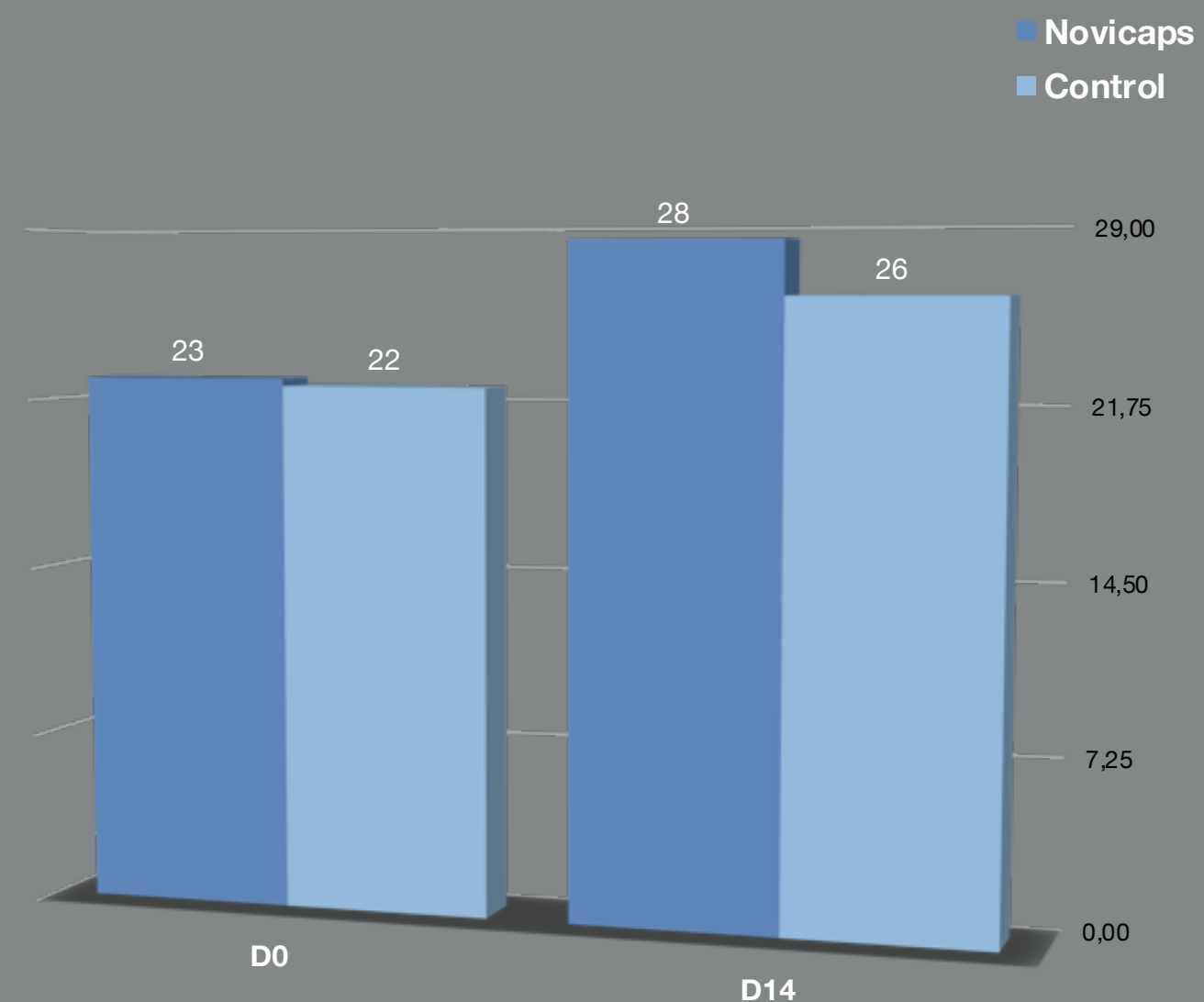
RESULTS – SUPERFICIAL JOINT HEATNESS (THERMOGRAPHY)

- ▶ Same evolution and no more heat than control
 - ▶ Dorsally or laterally to the fetlock

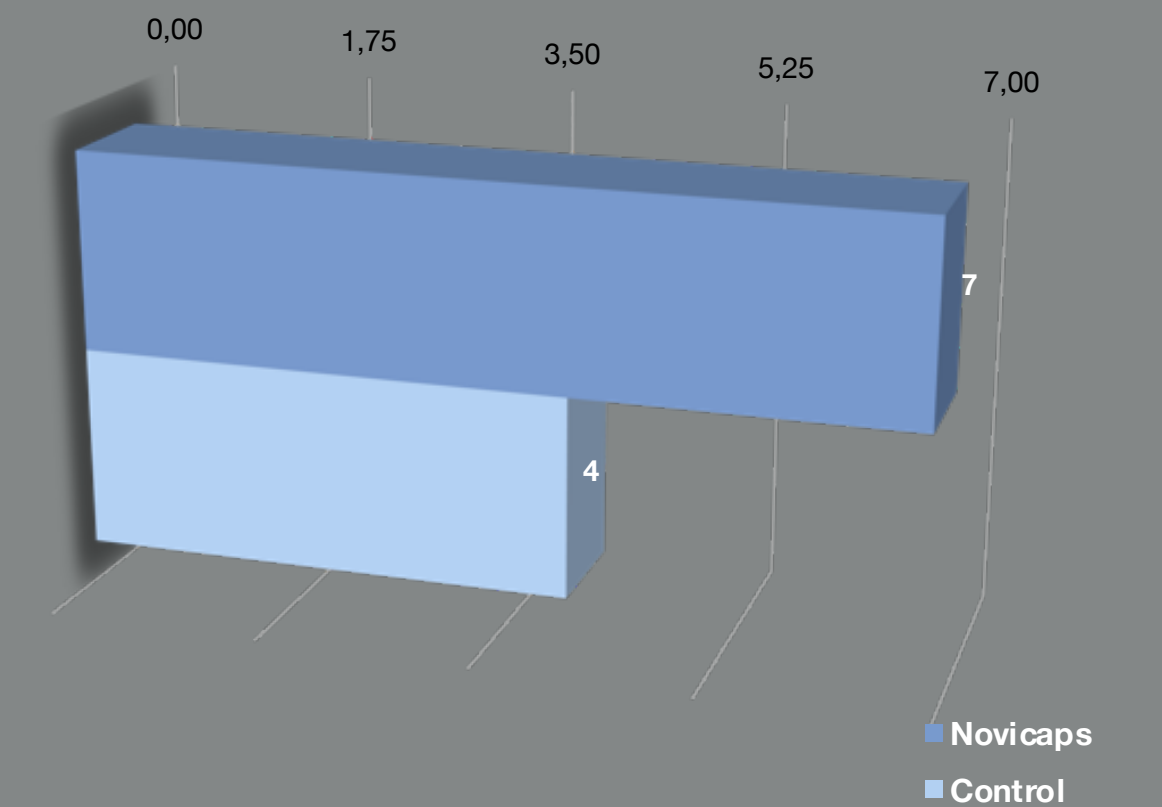
Dorsal fetlock thermo - °C



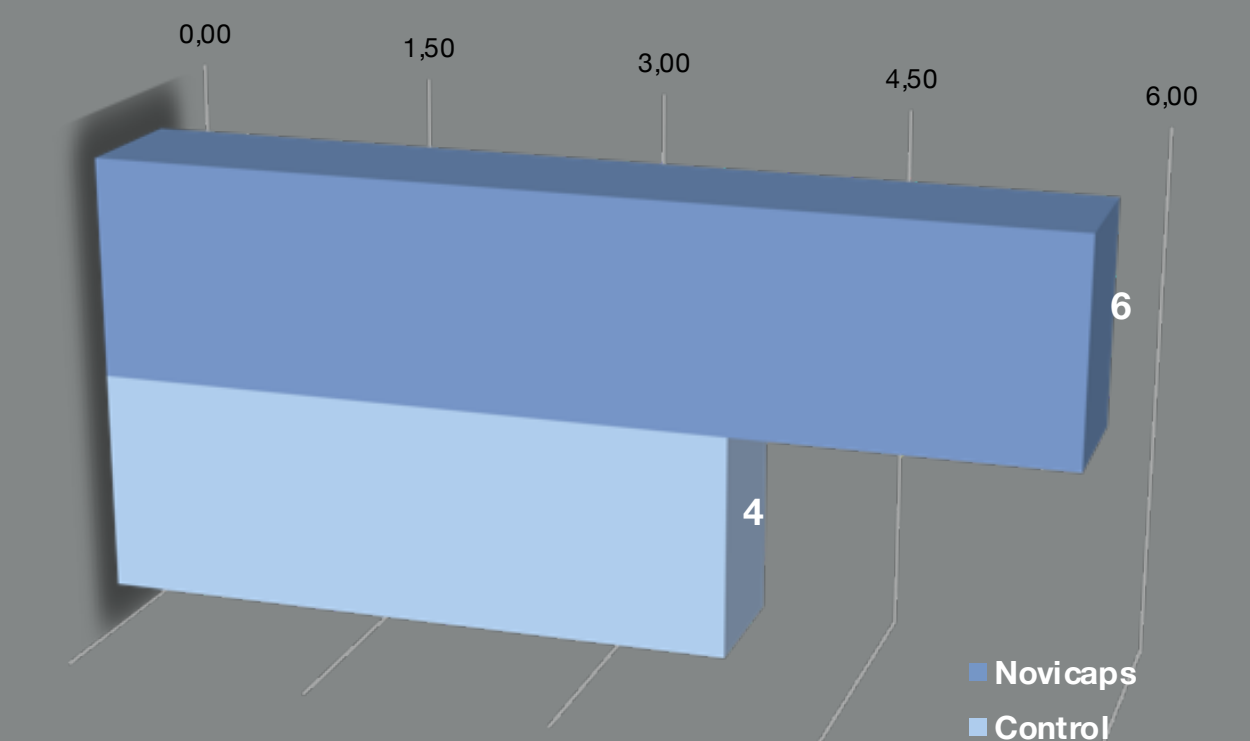
Lateral fetlock thermo - °C



Mean dorsal thermo °C

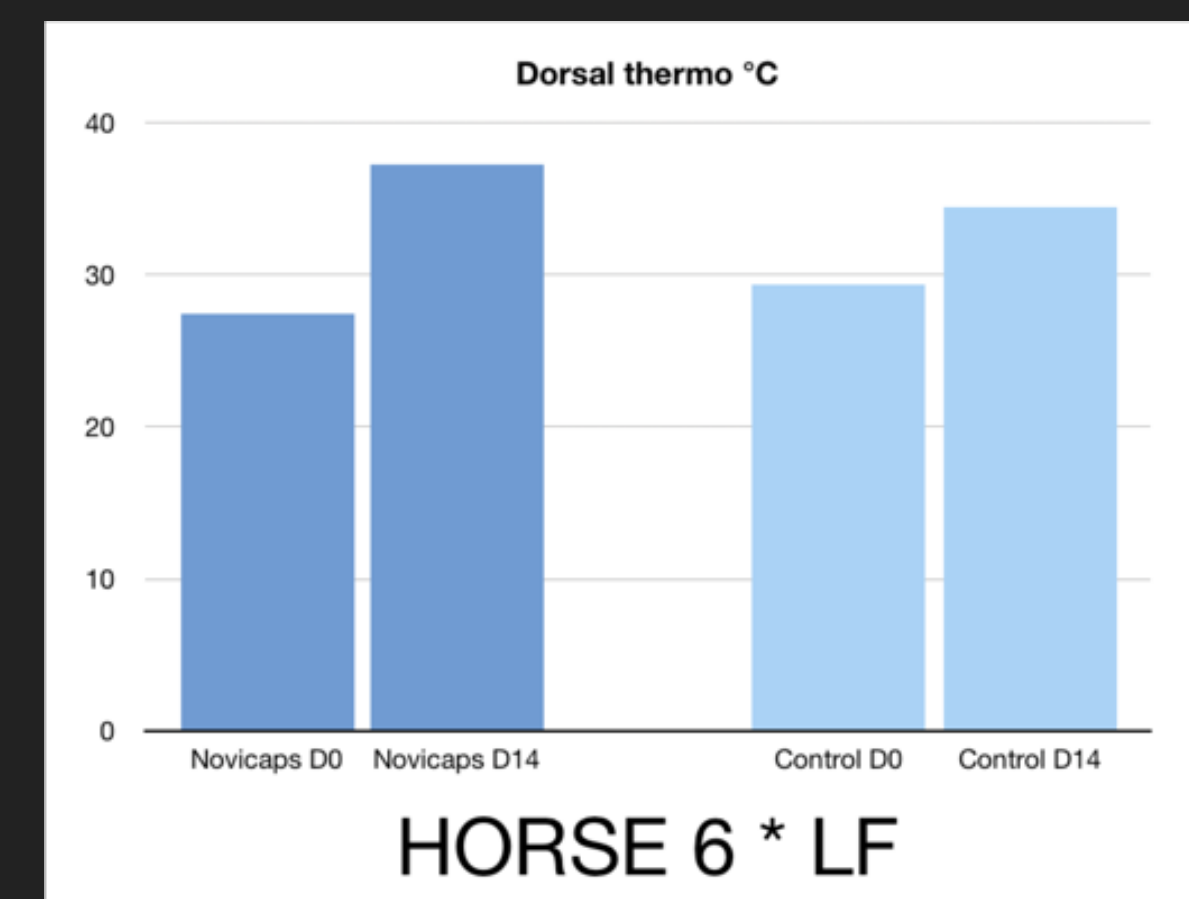
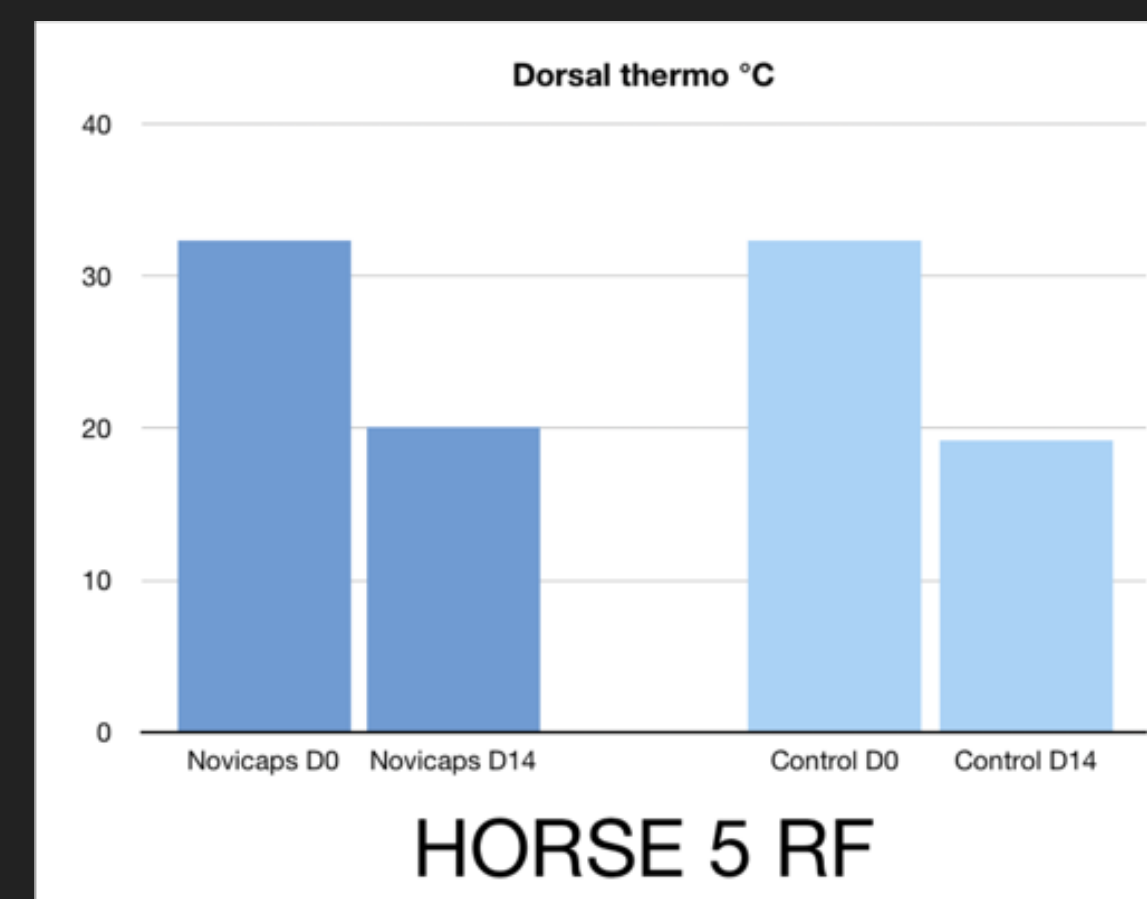
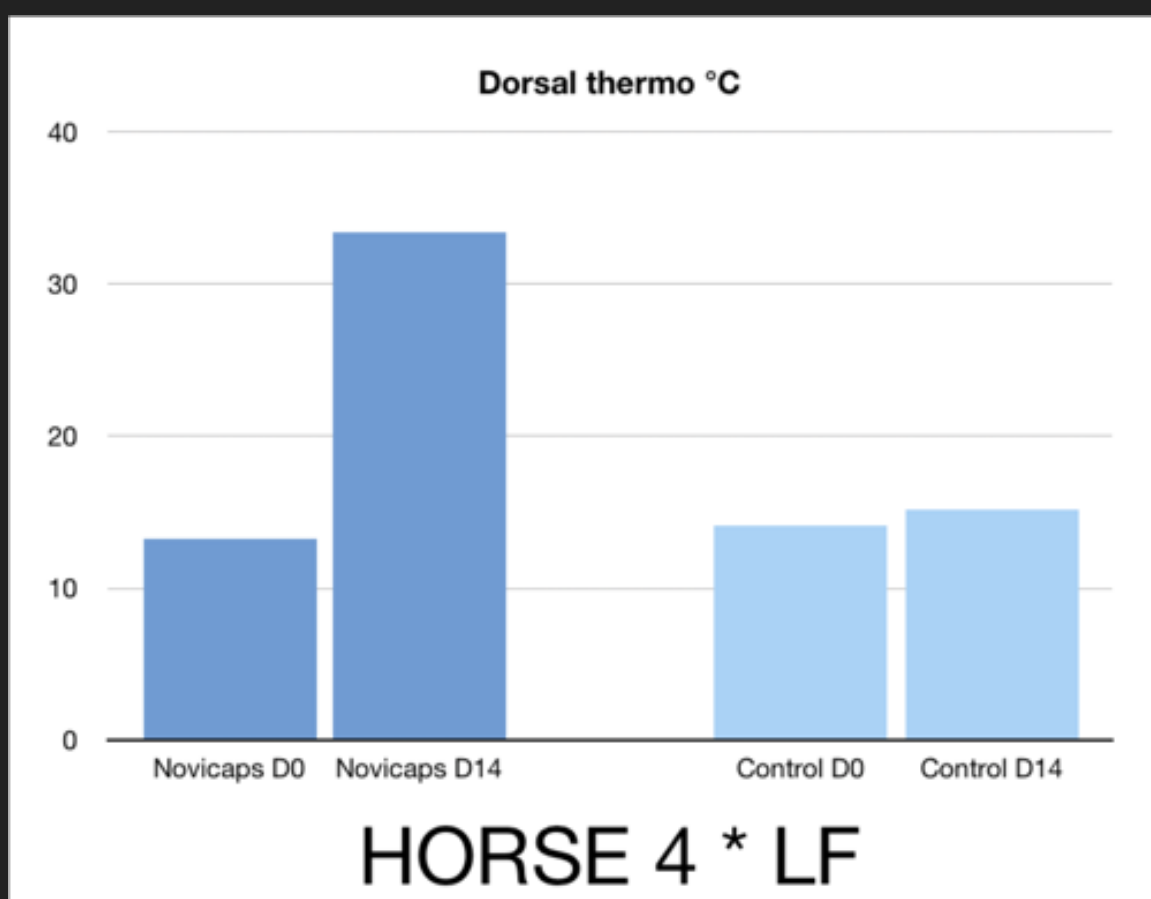
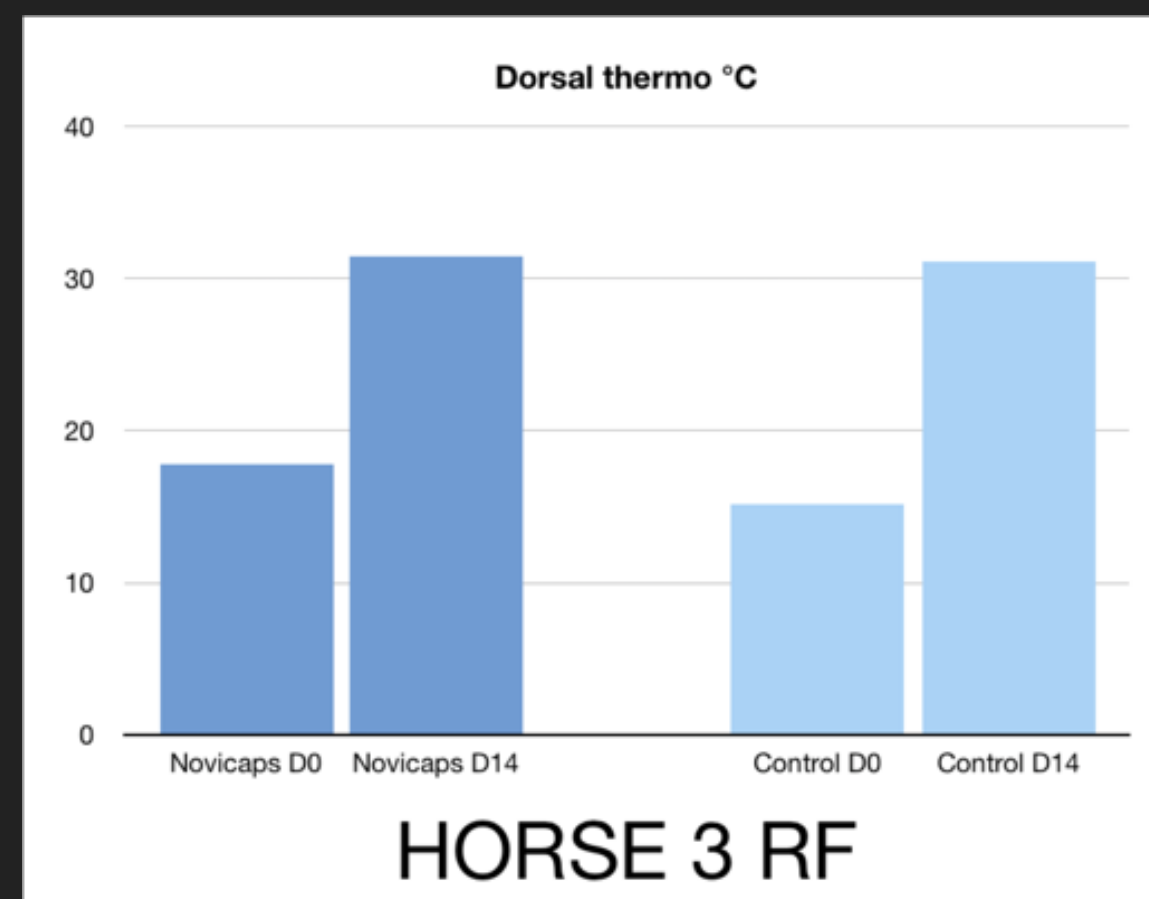
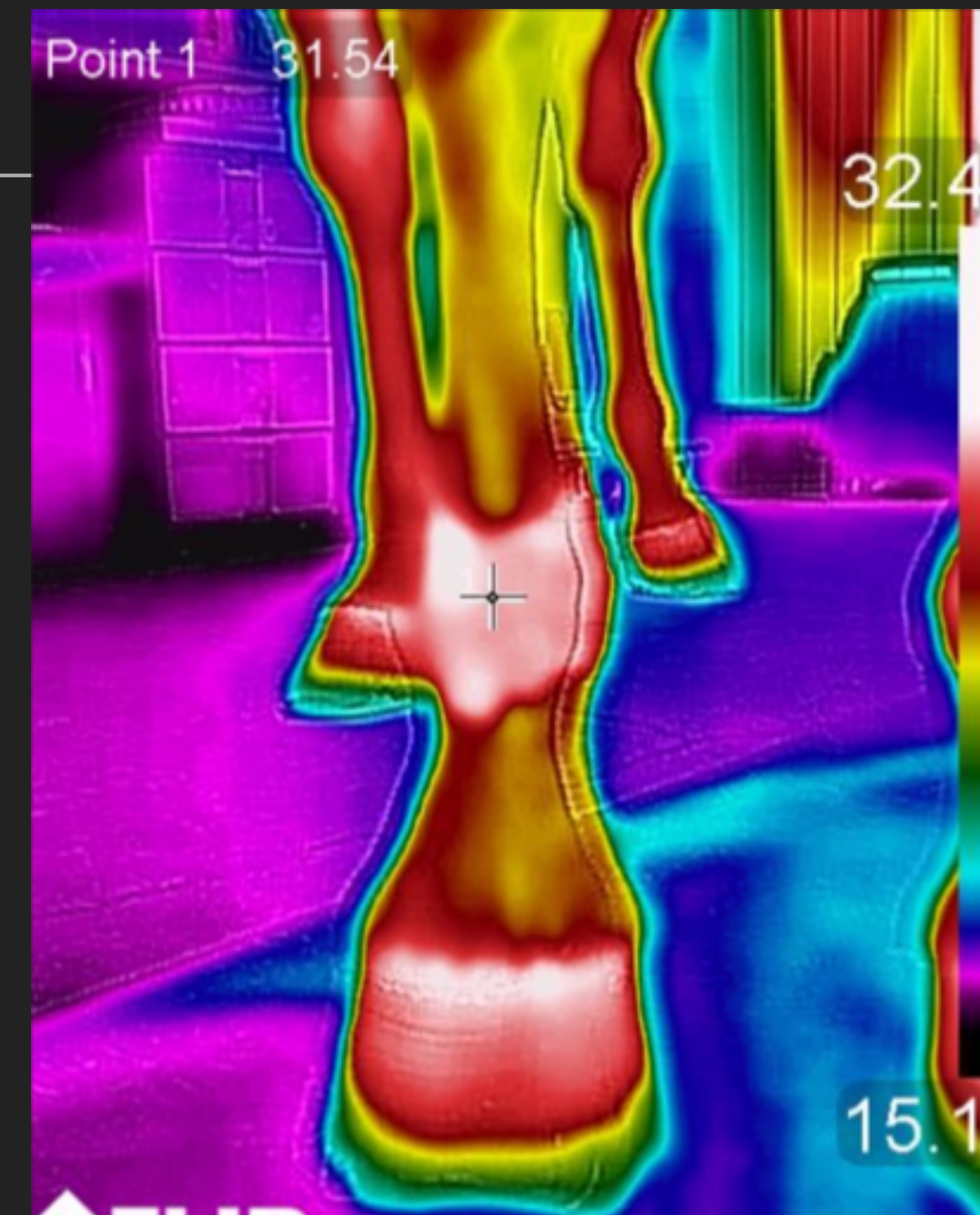
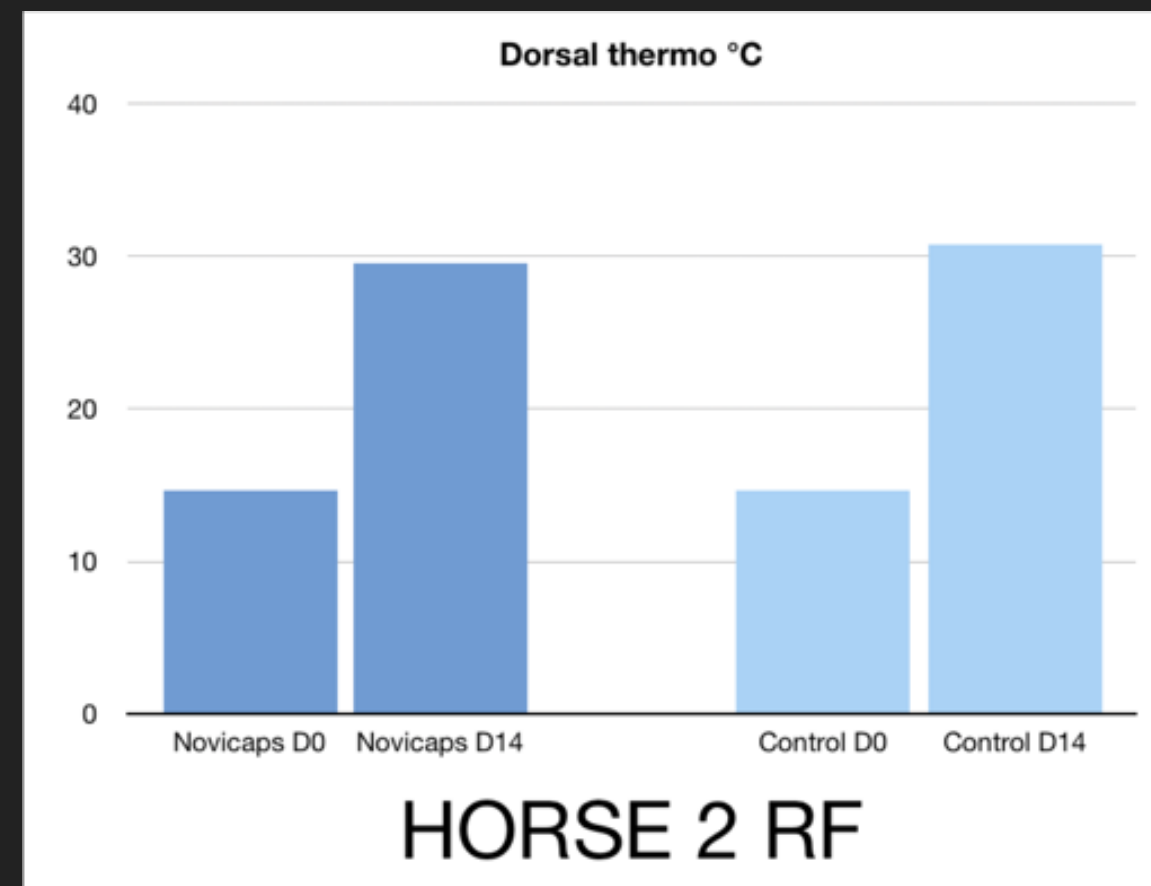
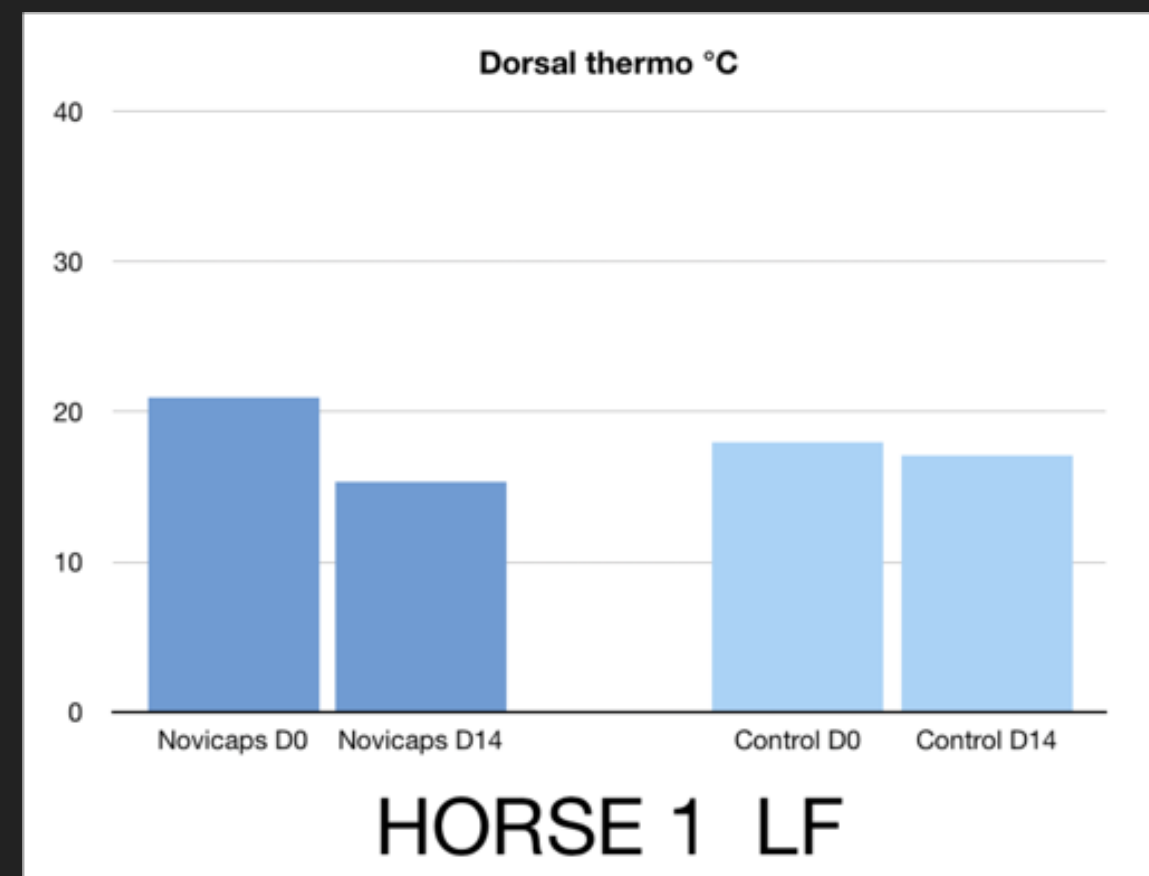


Mean lateral thermo °C



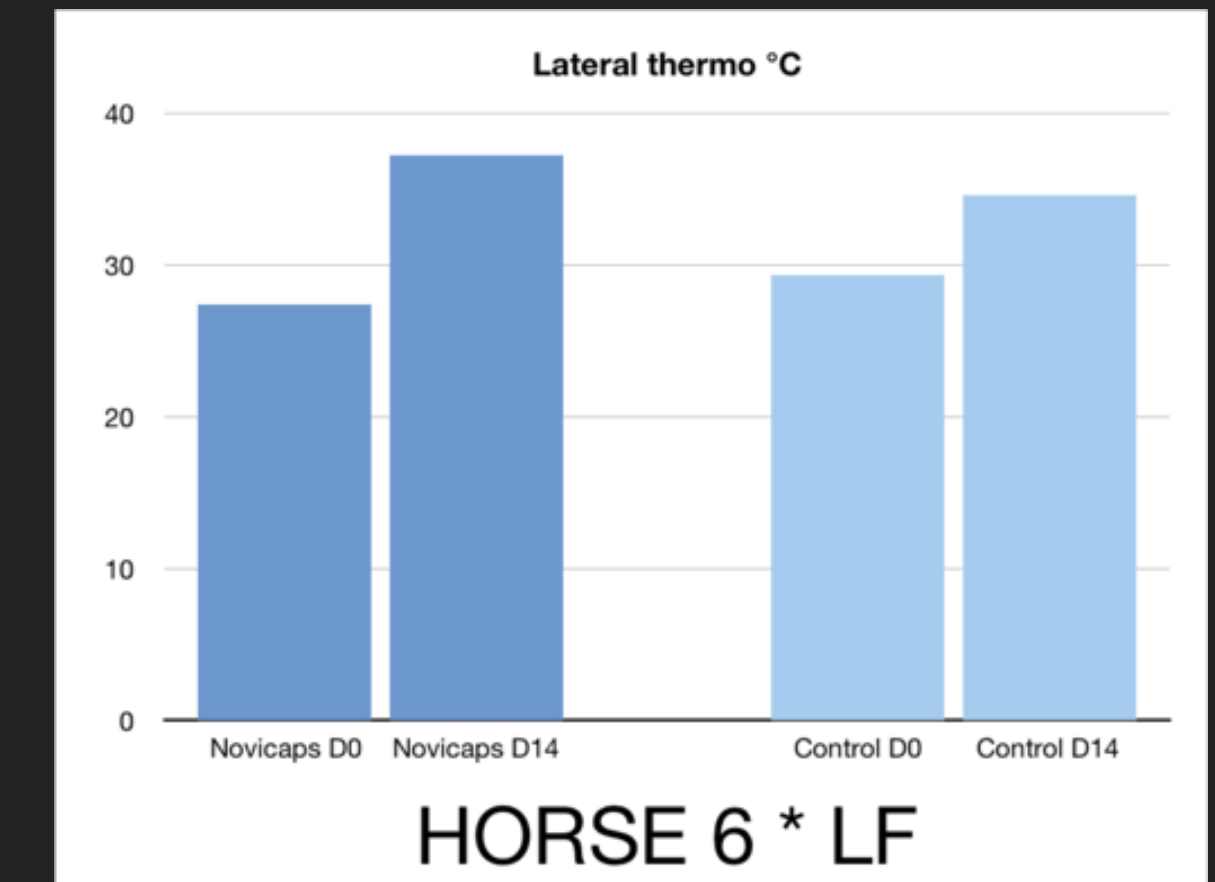
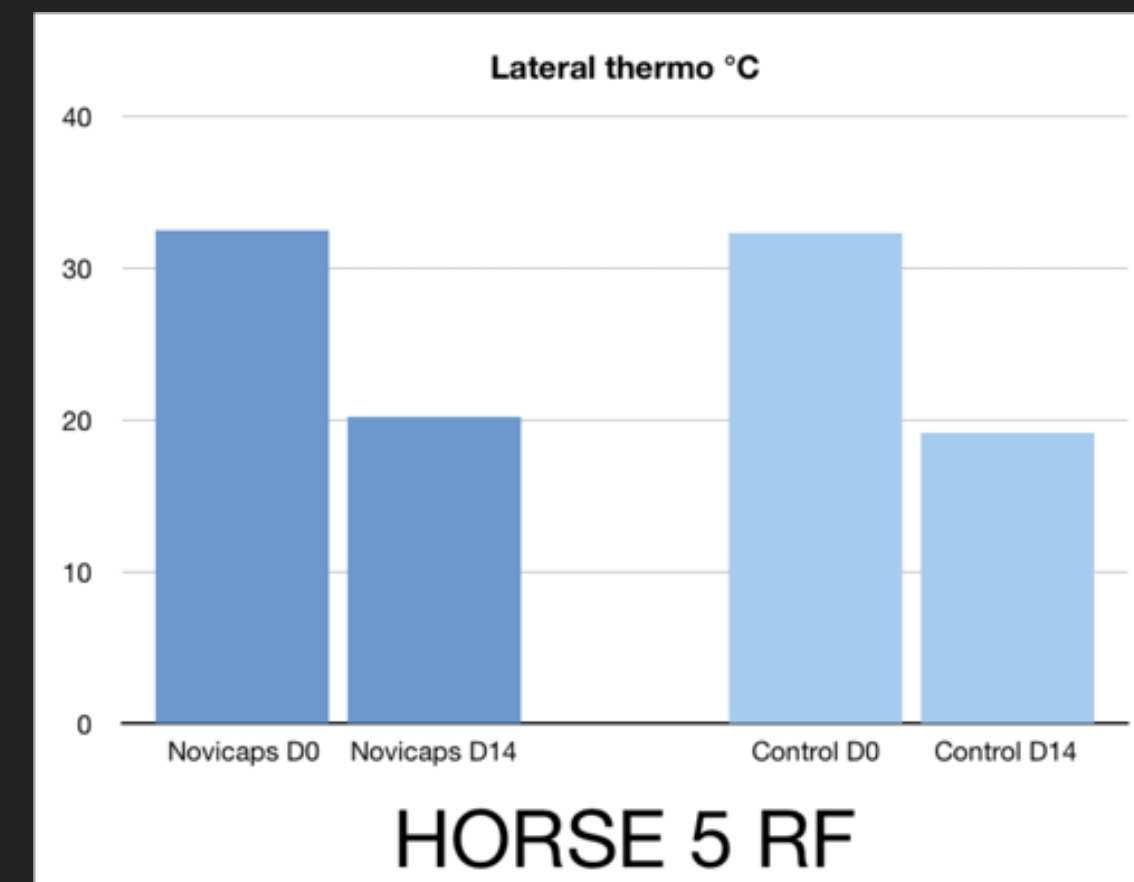
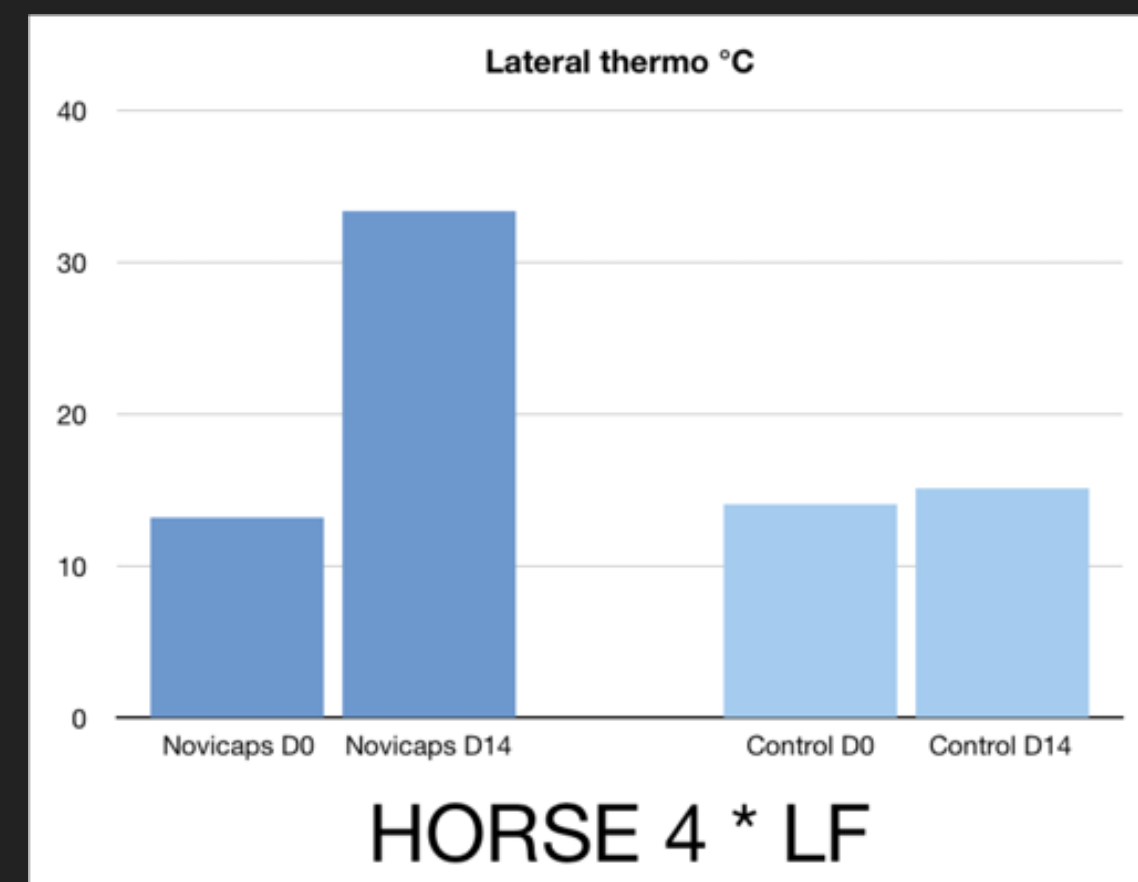
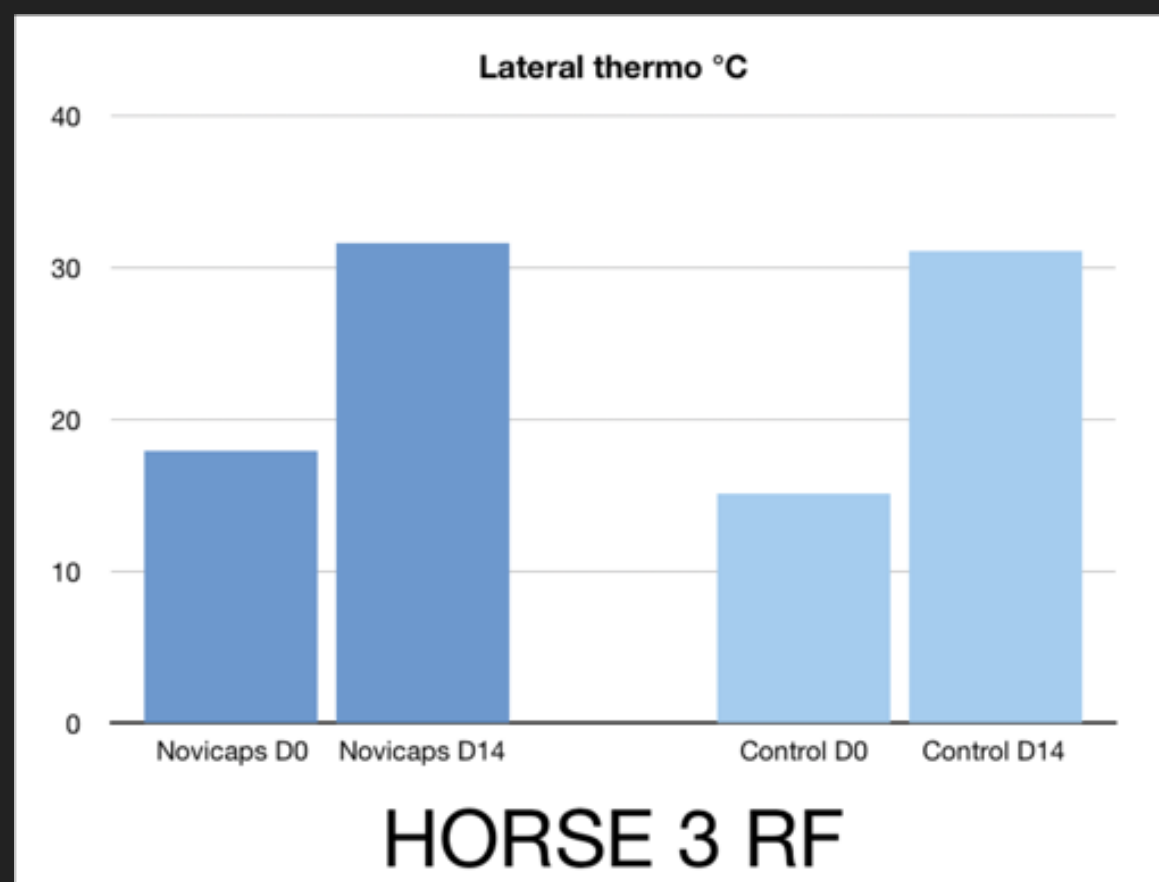
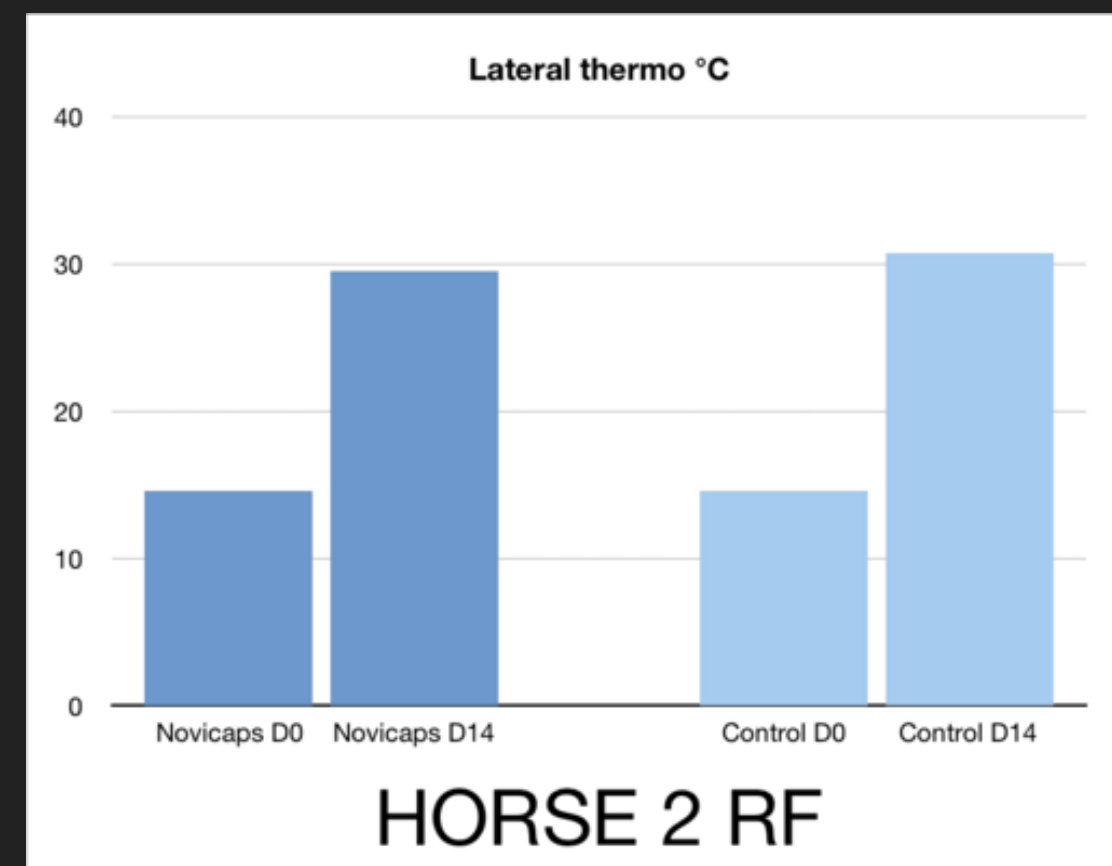
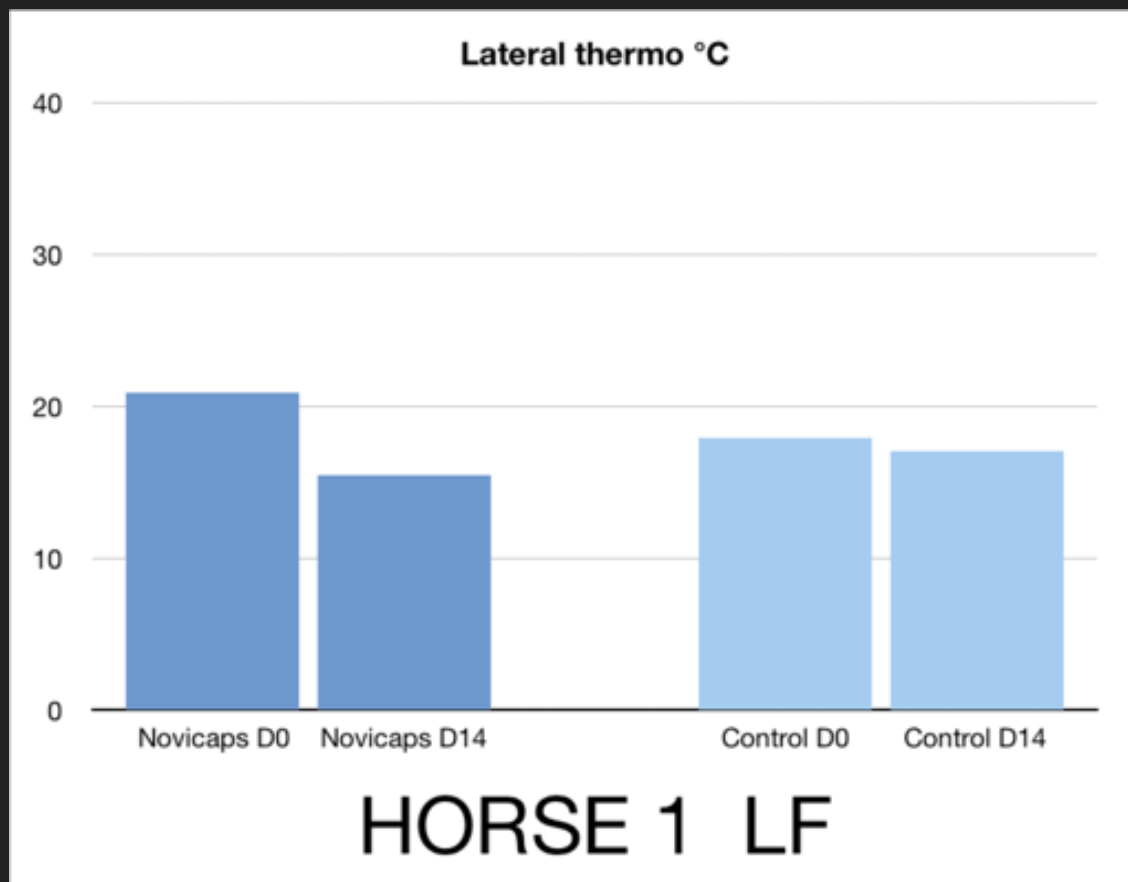
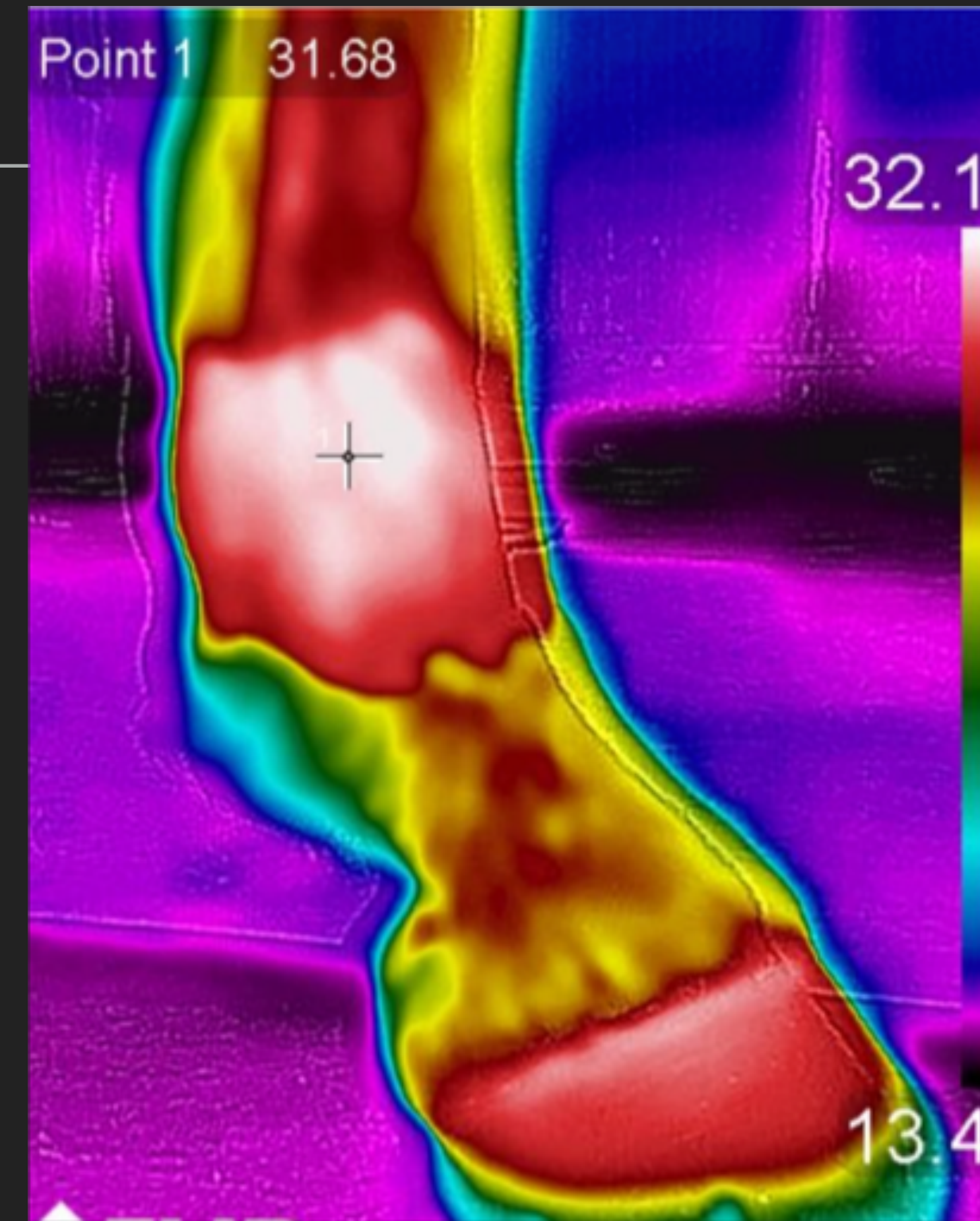
RESULTS – DORSAL JOINT HEATNESS (THERMOGRAPHY)

► Dorsal fetlock thermo / horse



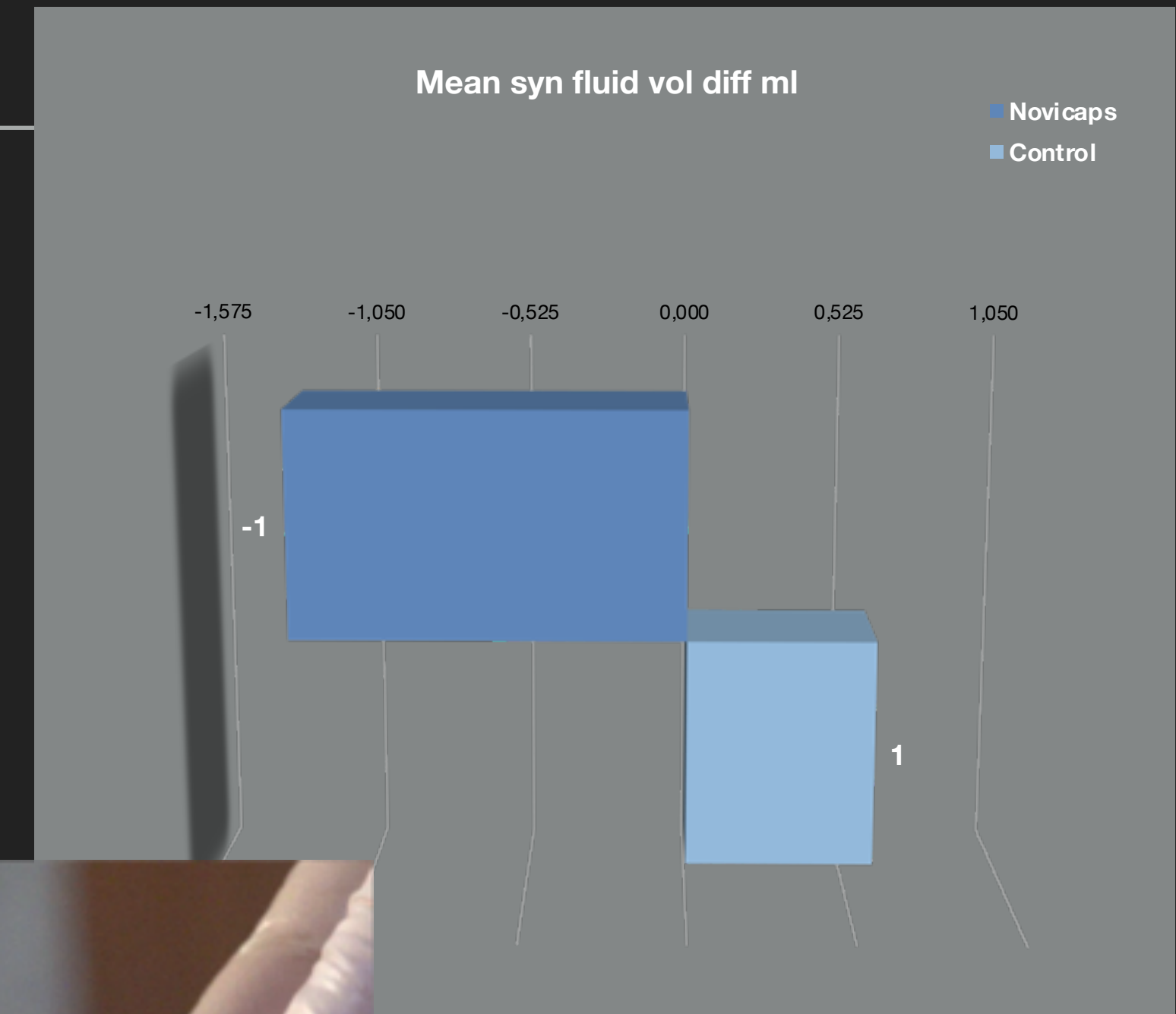
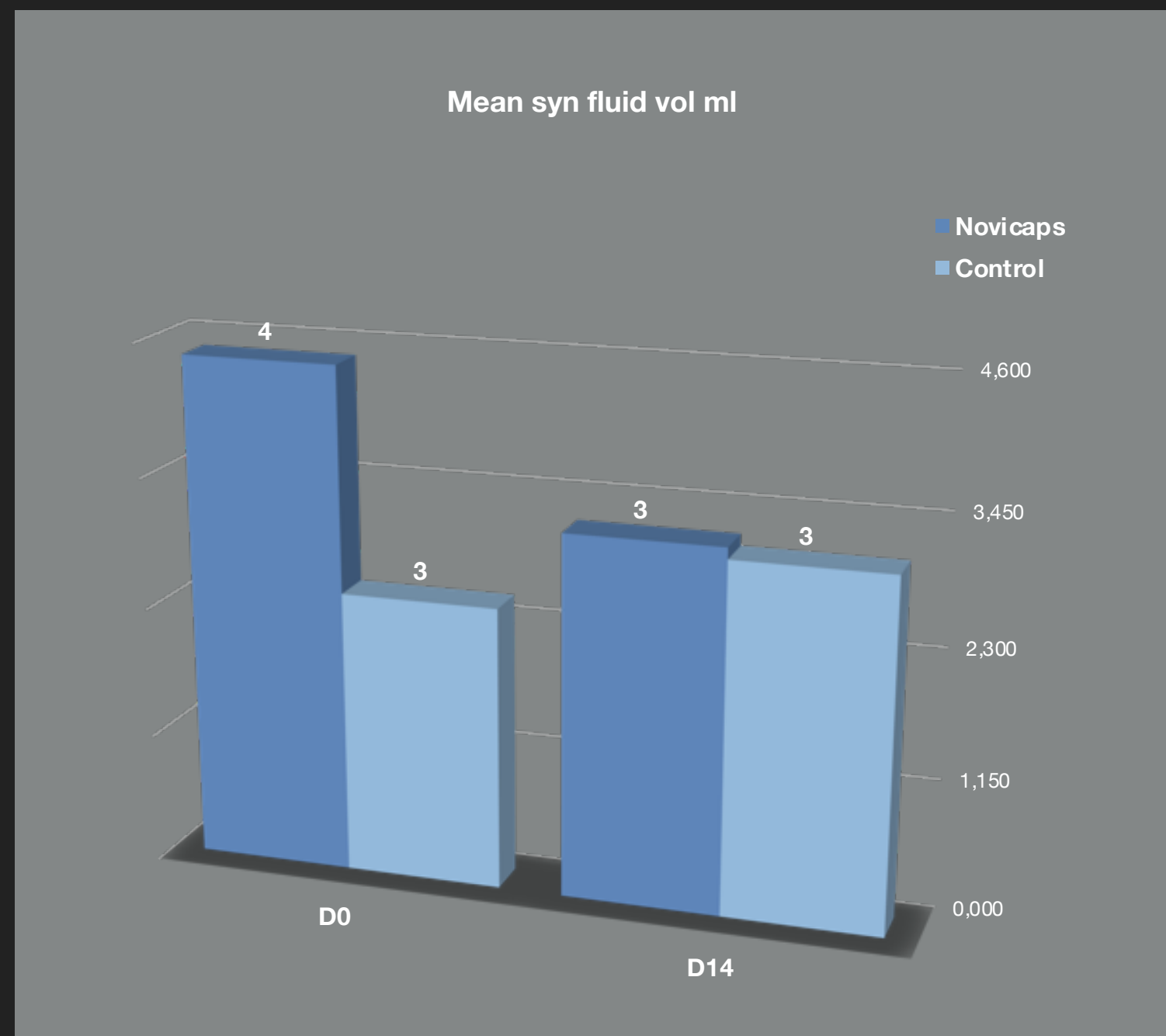
RESULTS – LATERAL JOINT HEATNESS (THERMOGRAPHY)

► Lateral fetlock thermo / horse



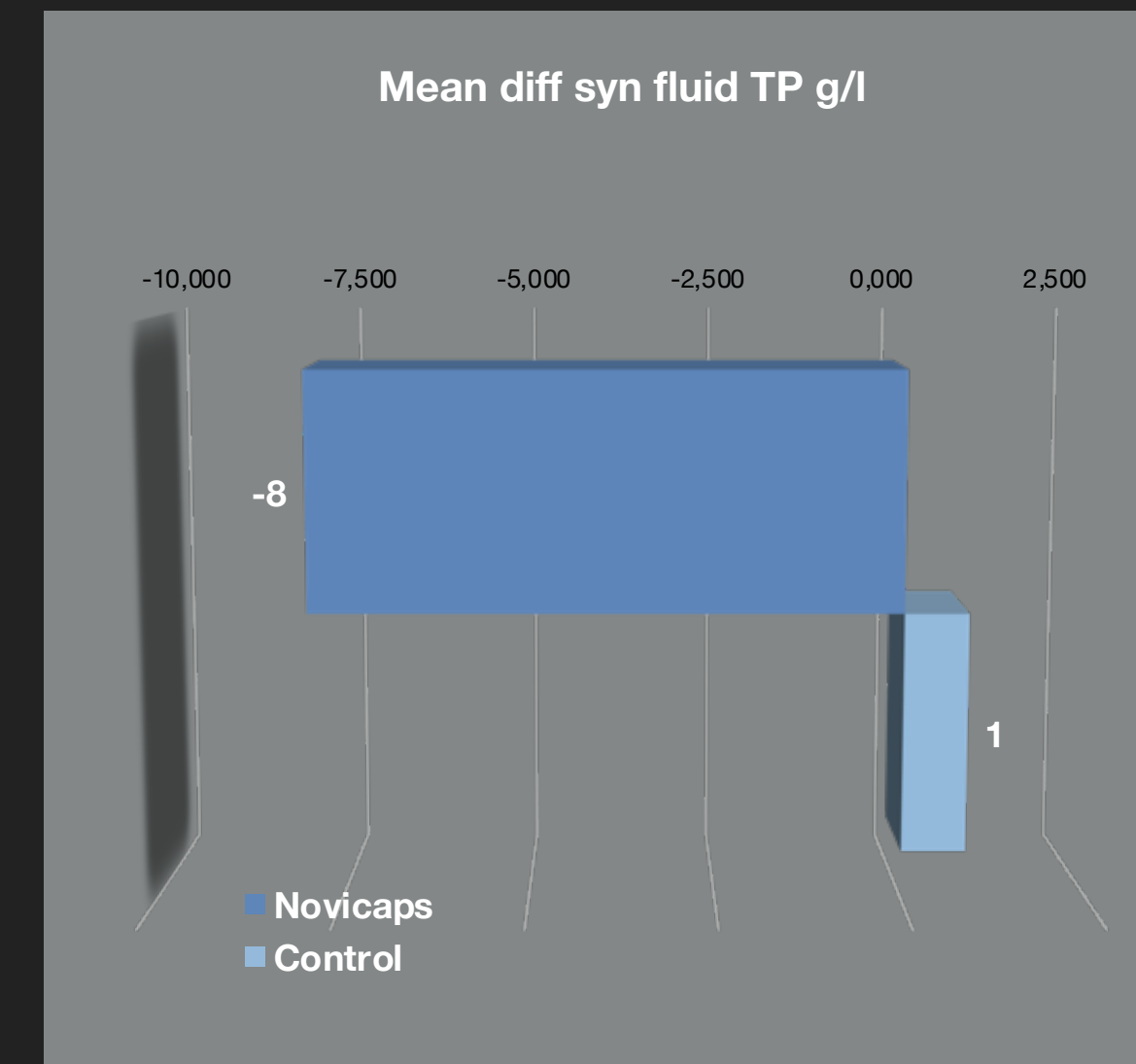
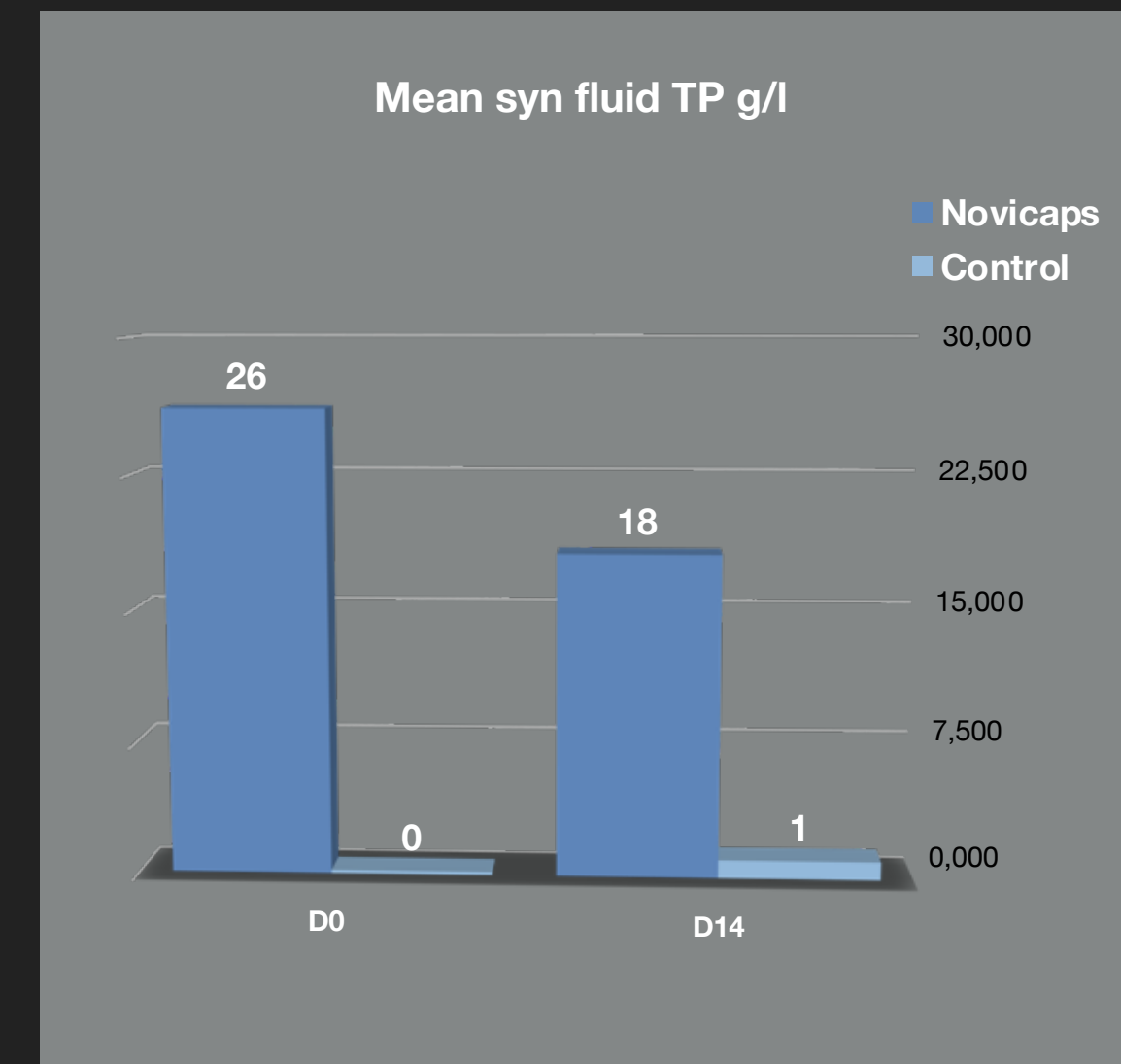
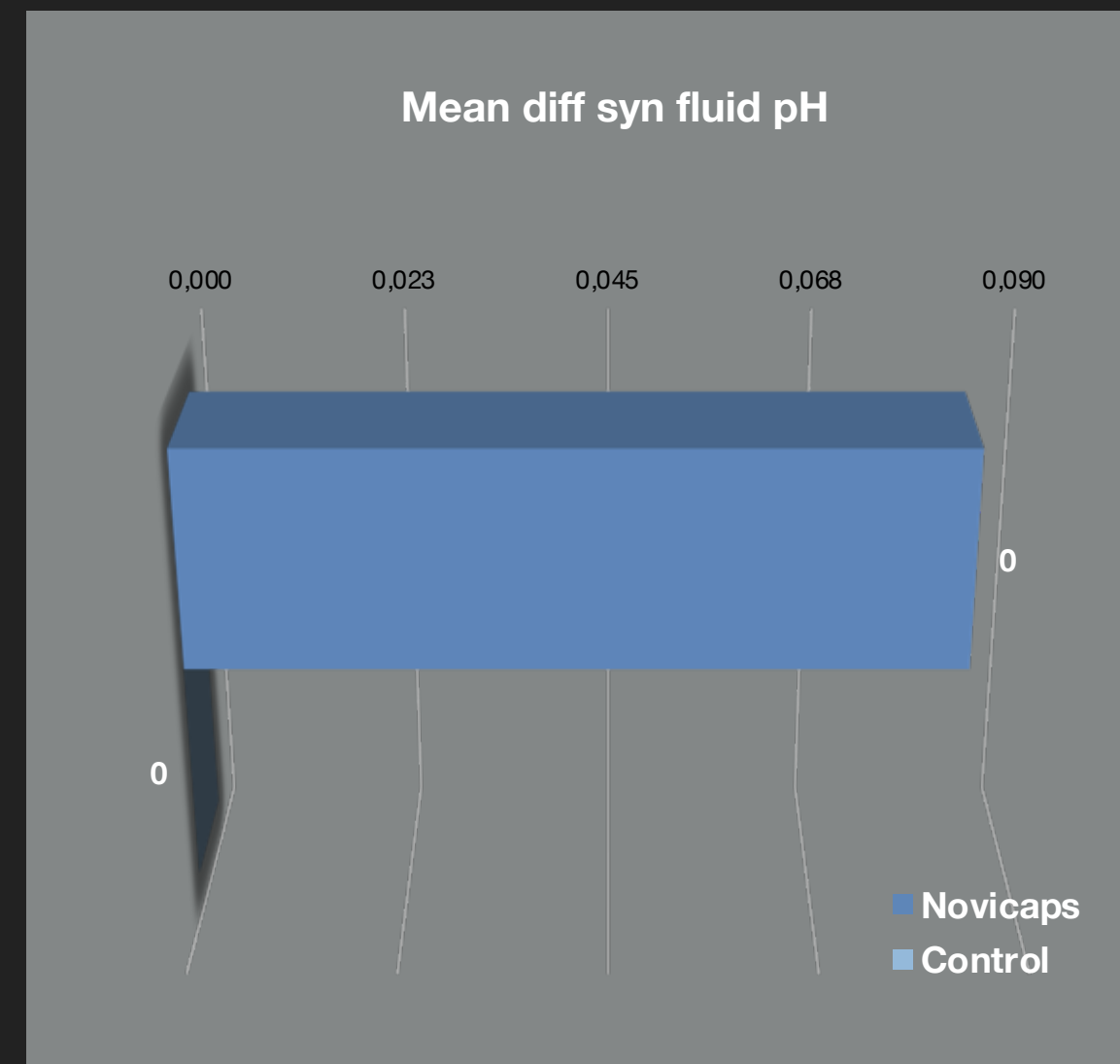
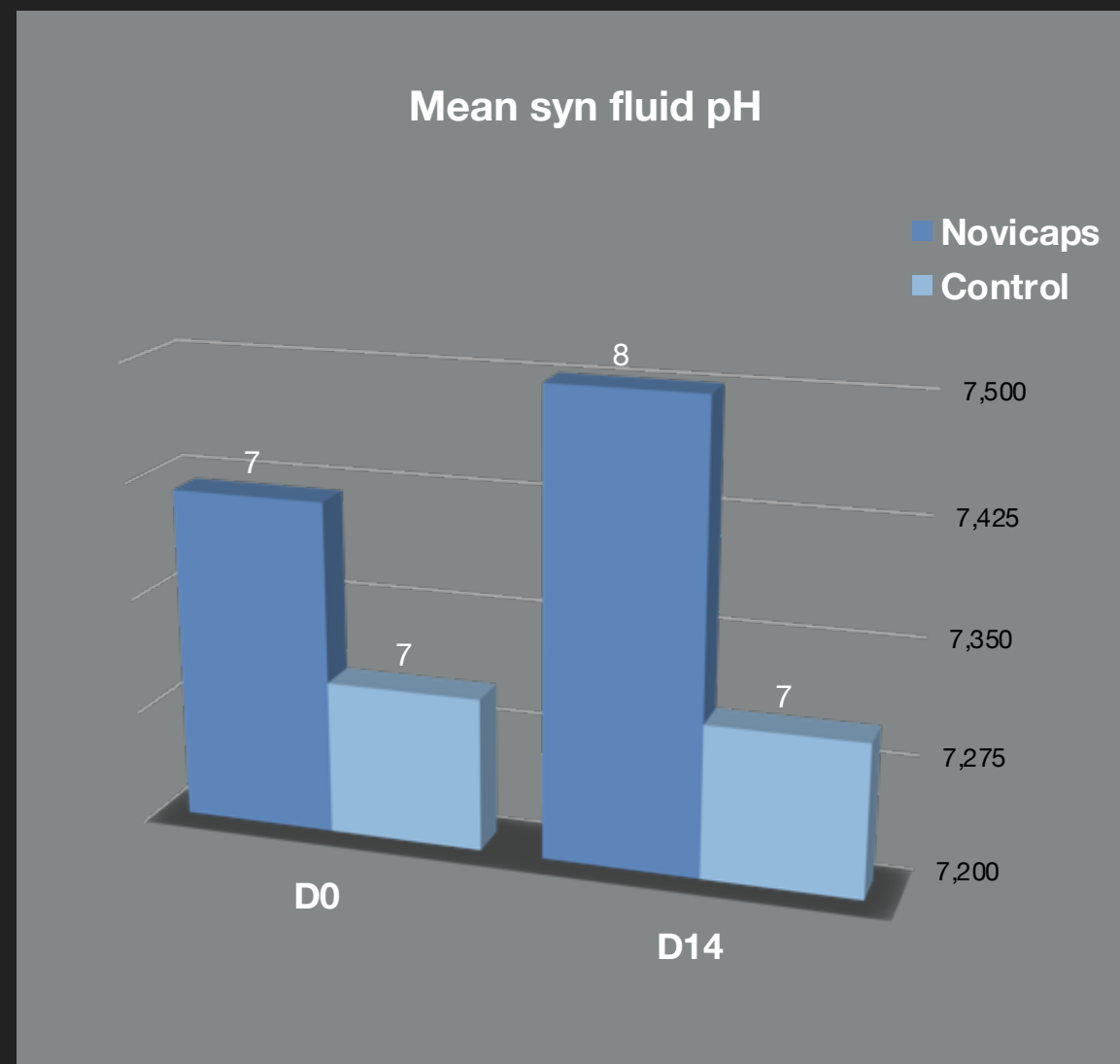
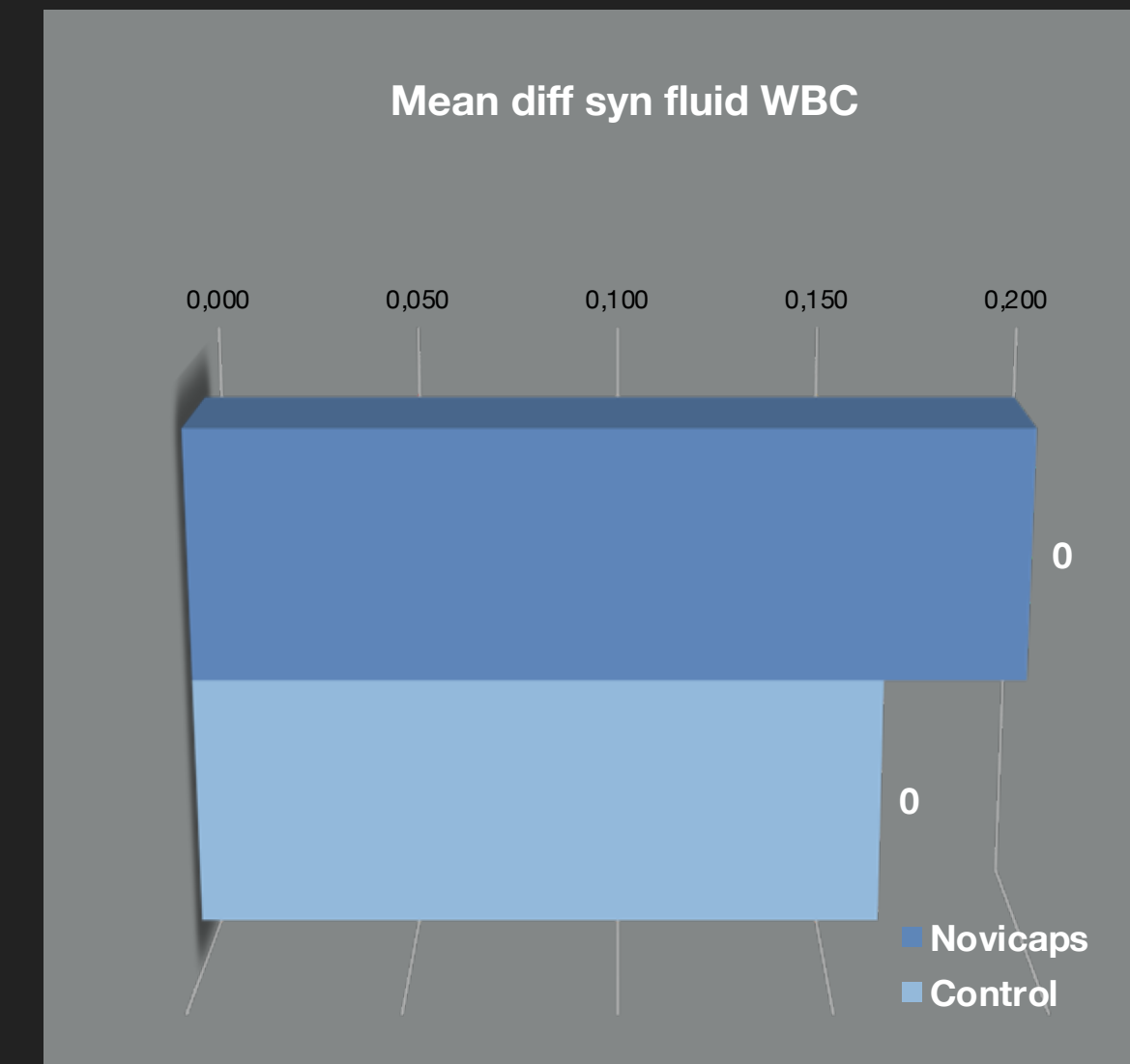
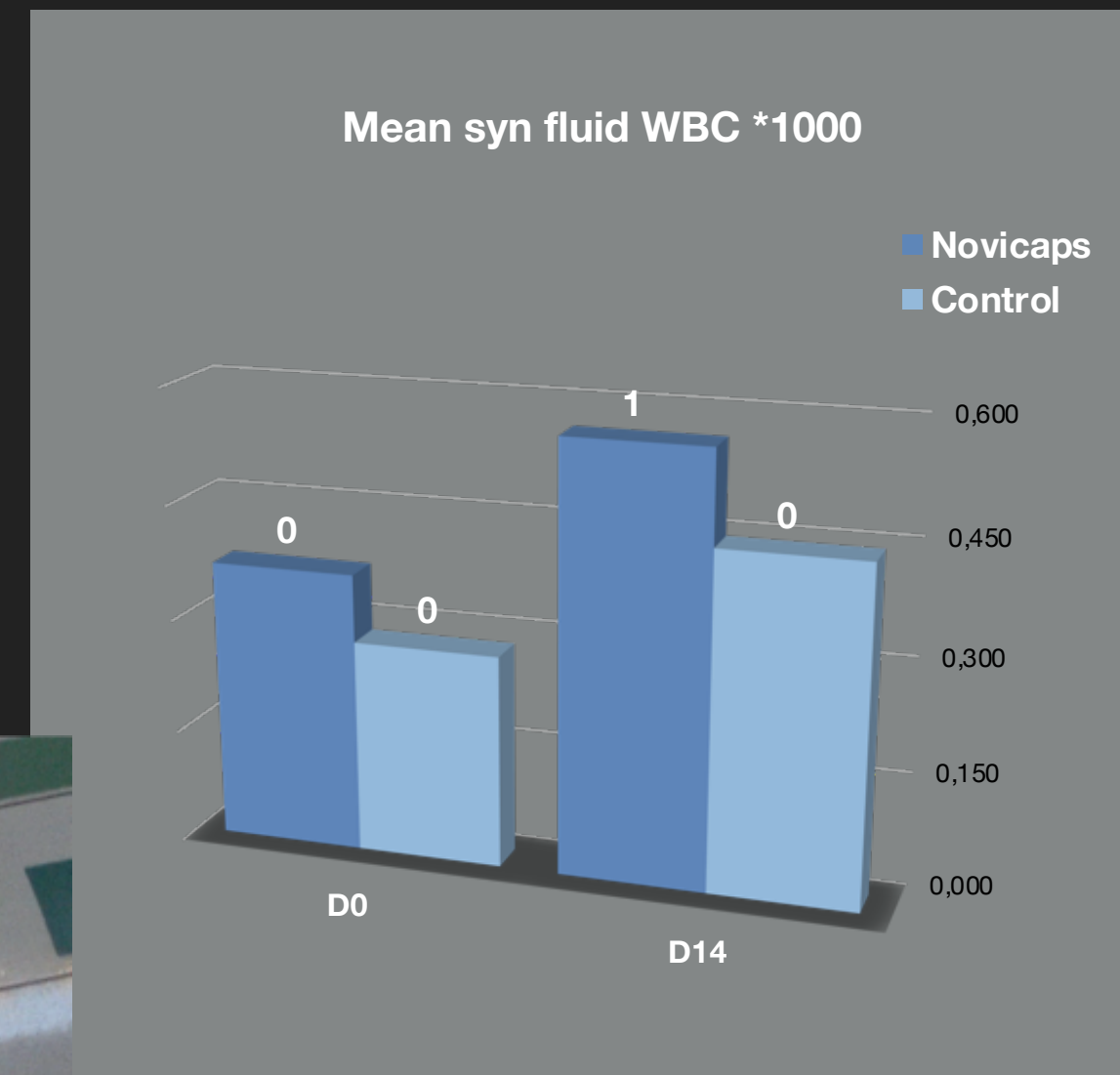
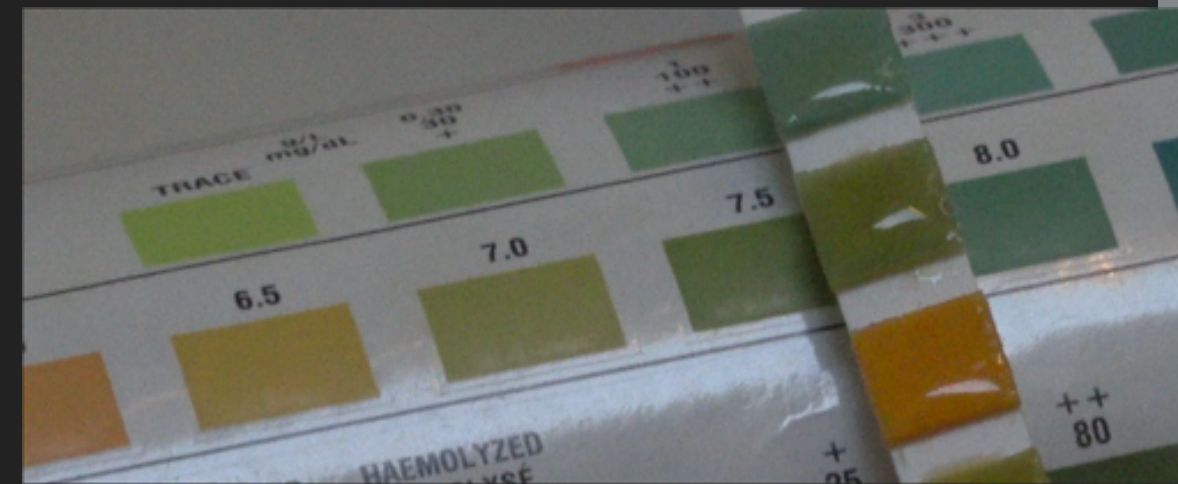
RESULTS – SYNOVIAL FLUID VOLUME

- ▶ Less synovial fluid collected



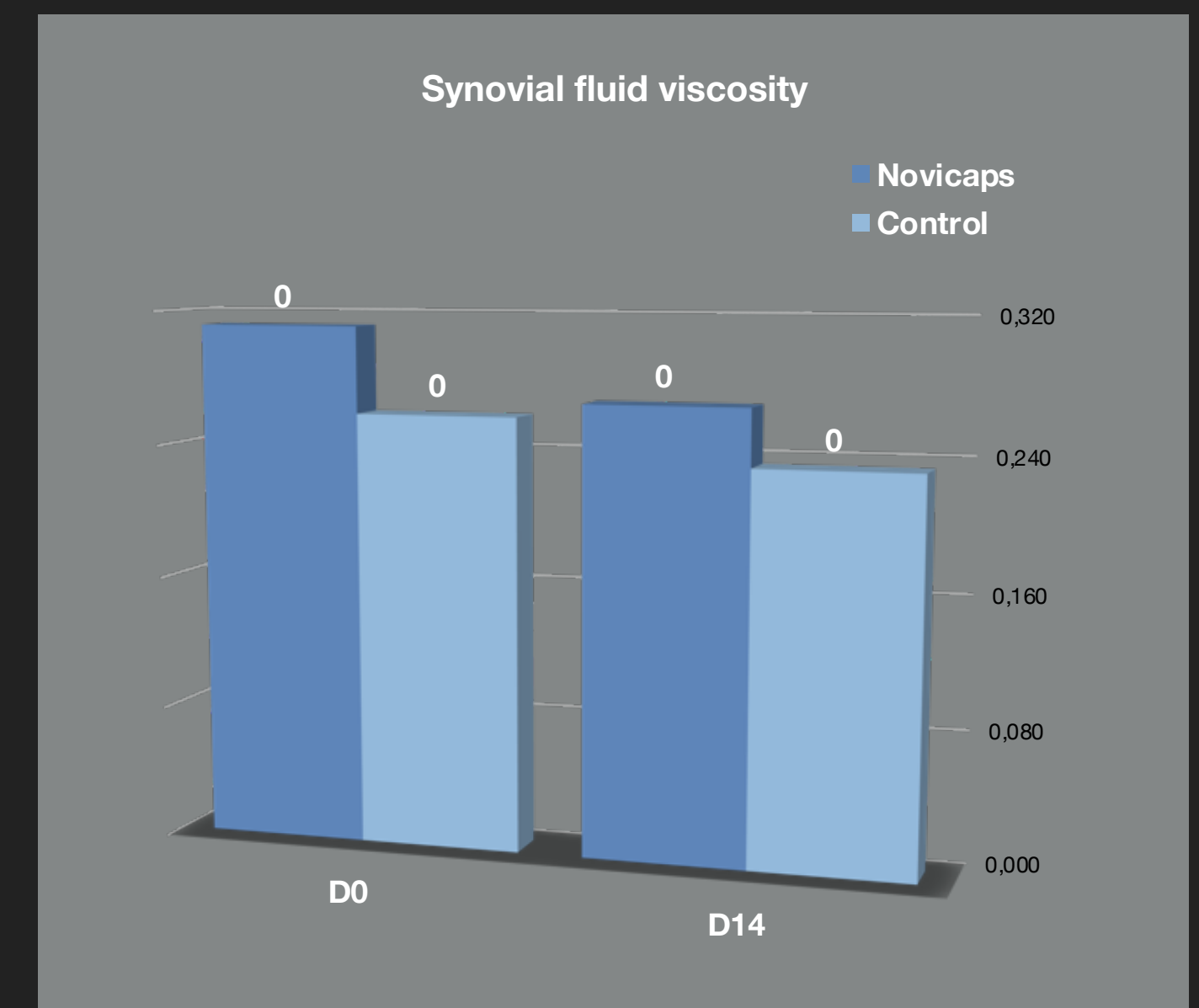
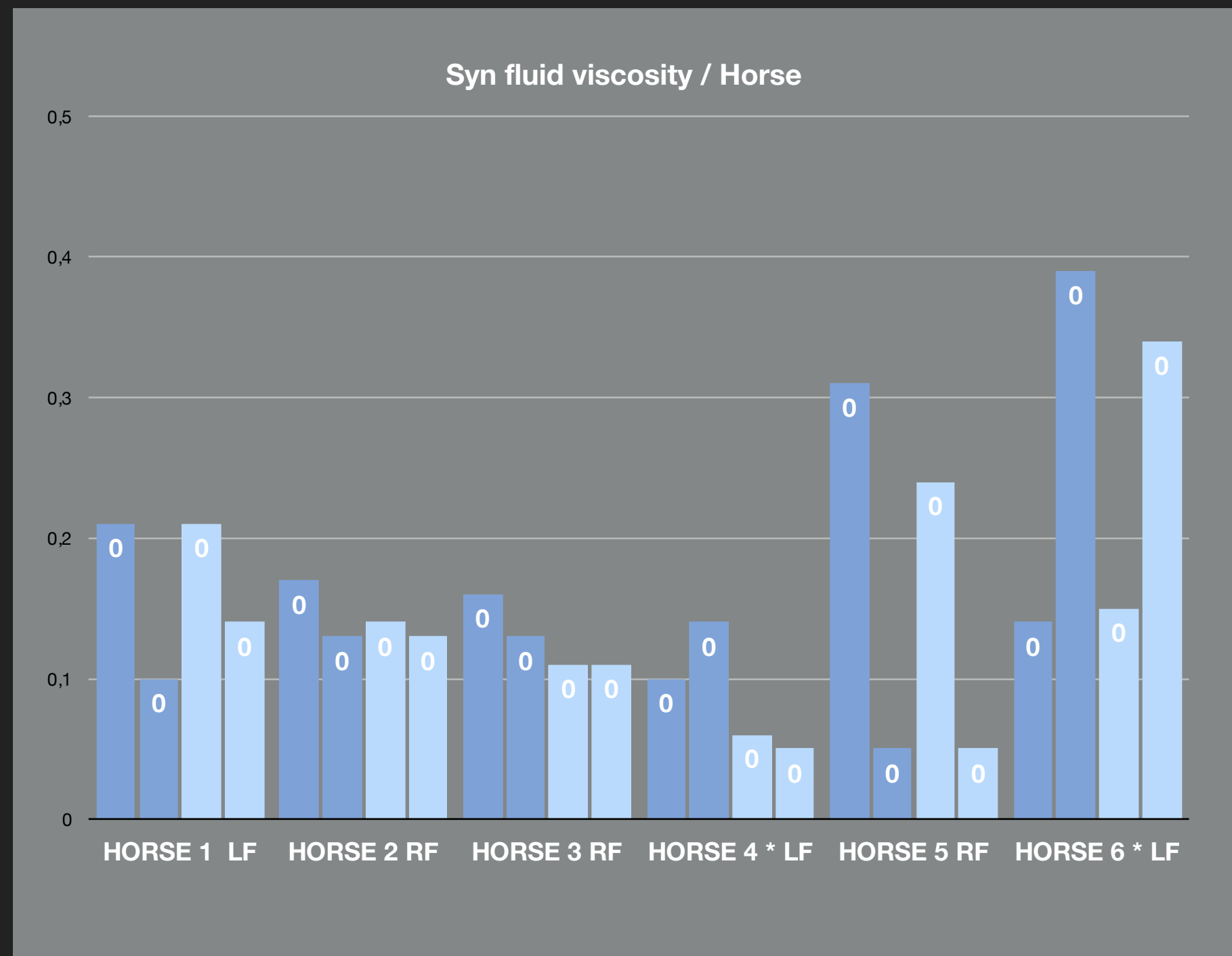
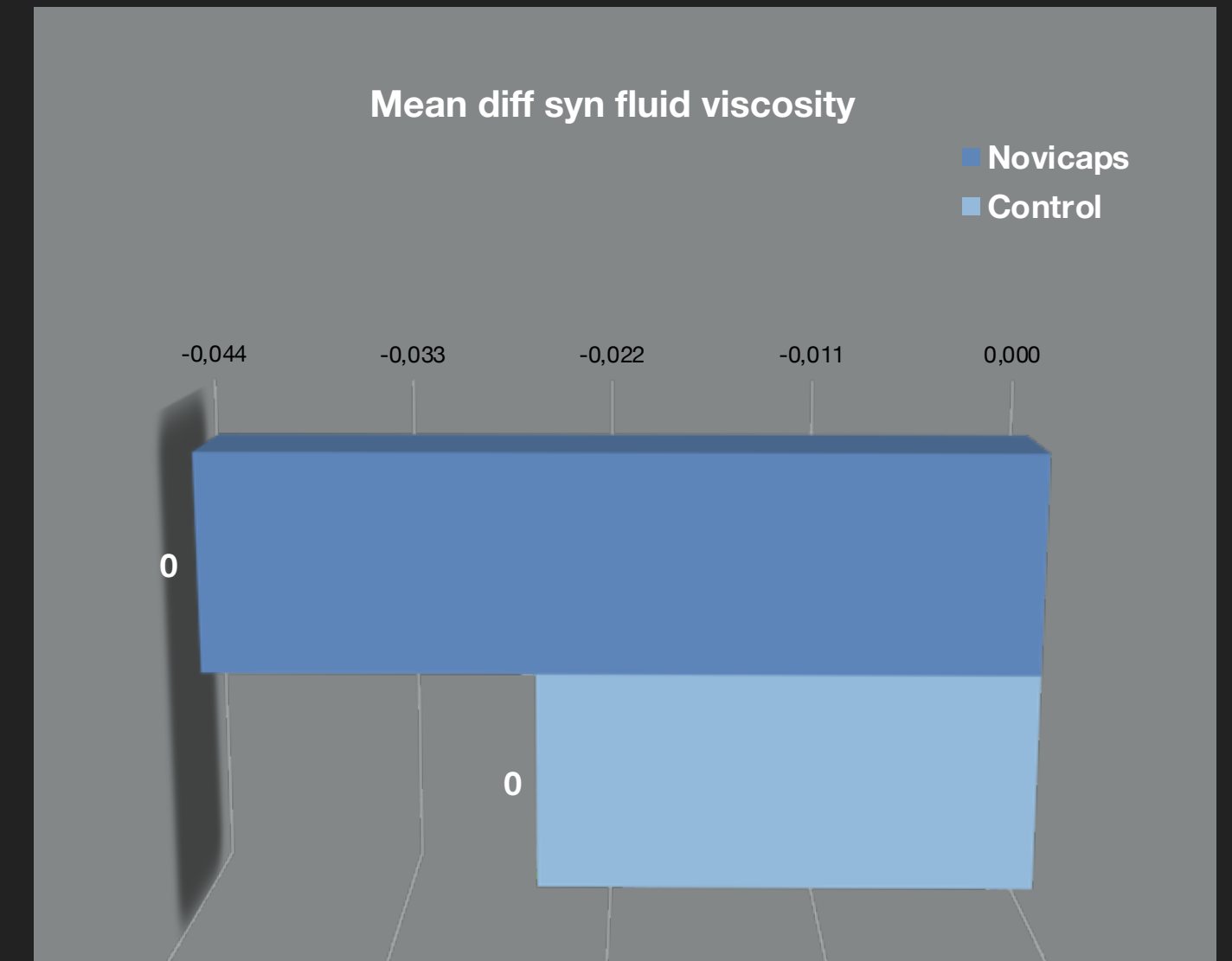
RESULTS – SYNOVIAL FLUID COMPOSITION

- ▶ No difference for WBC
- ▶ Slight increase in pH
- ▶ Decreased TP



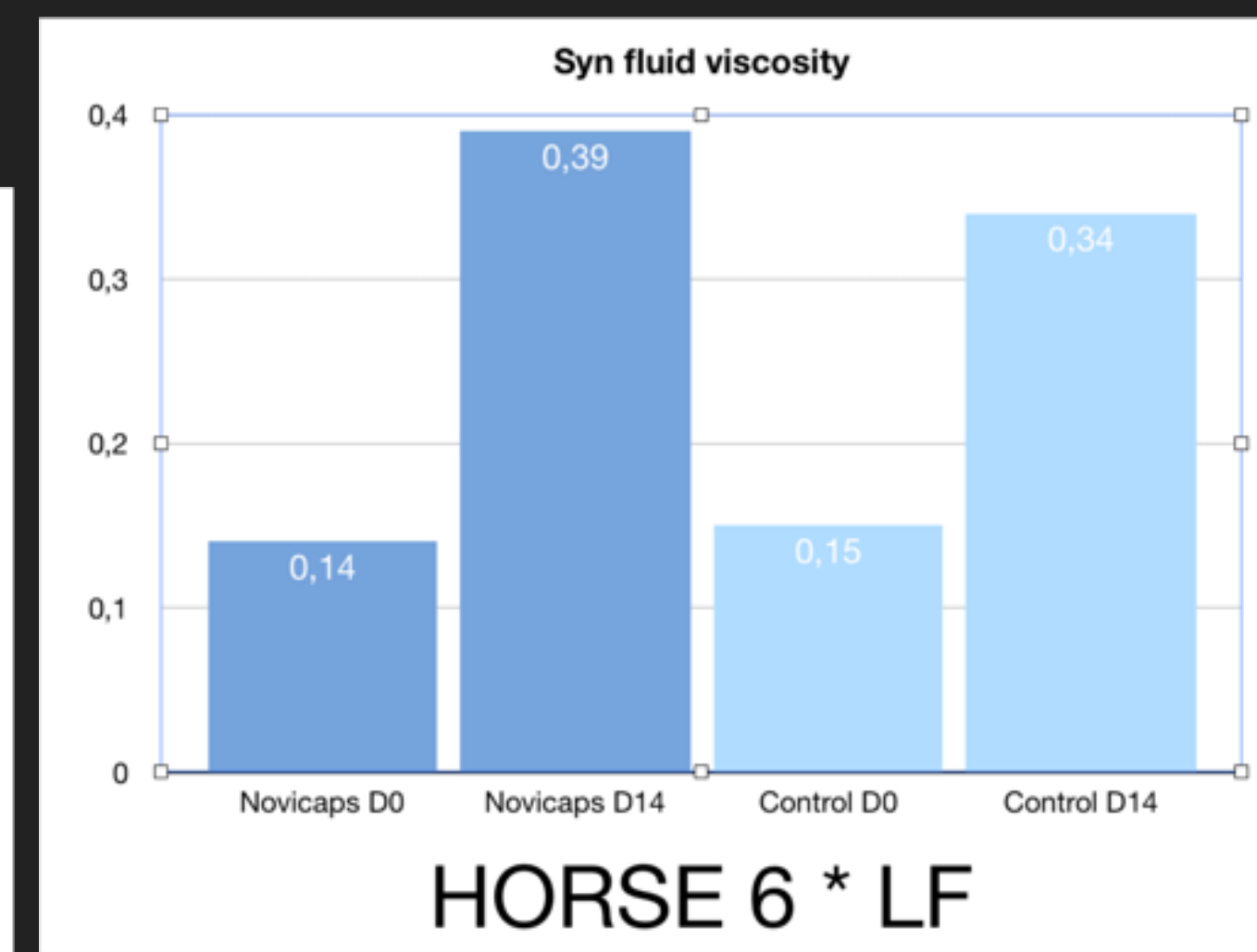
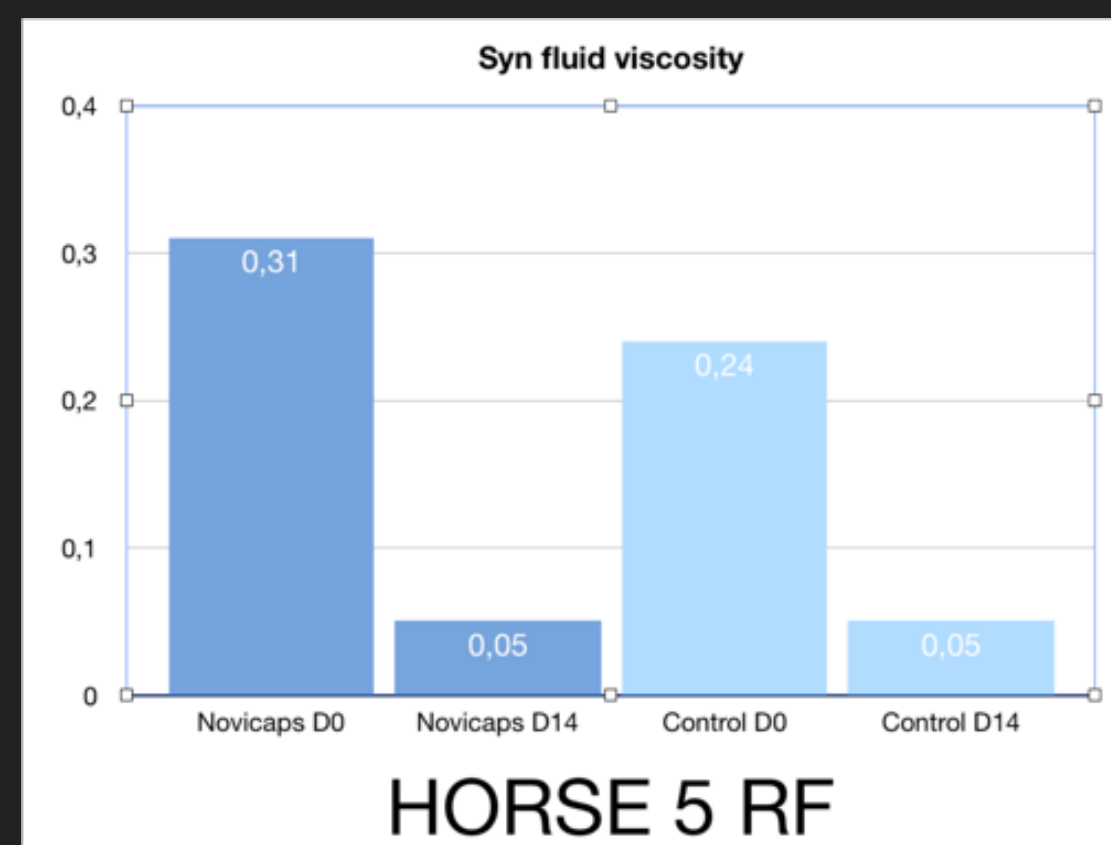
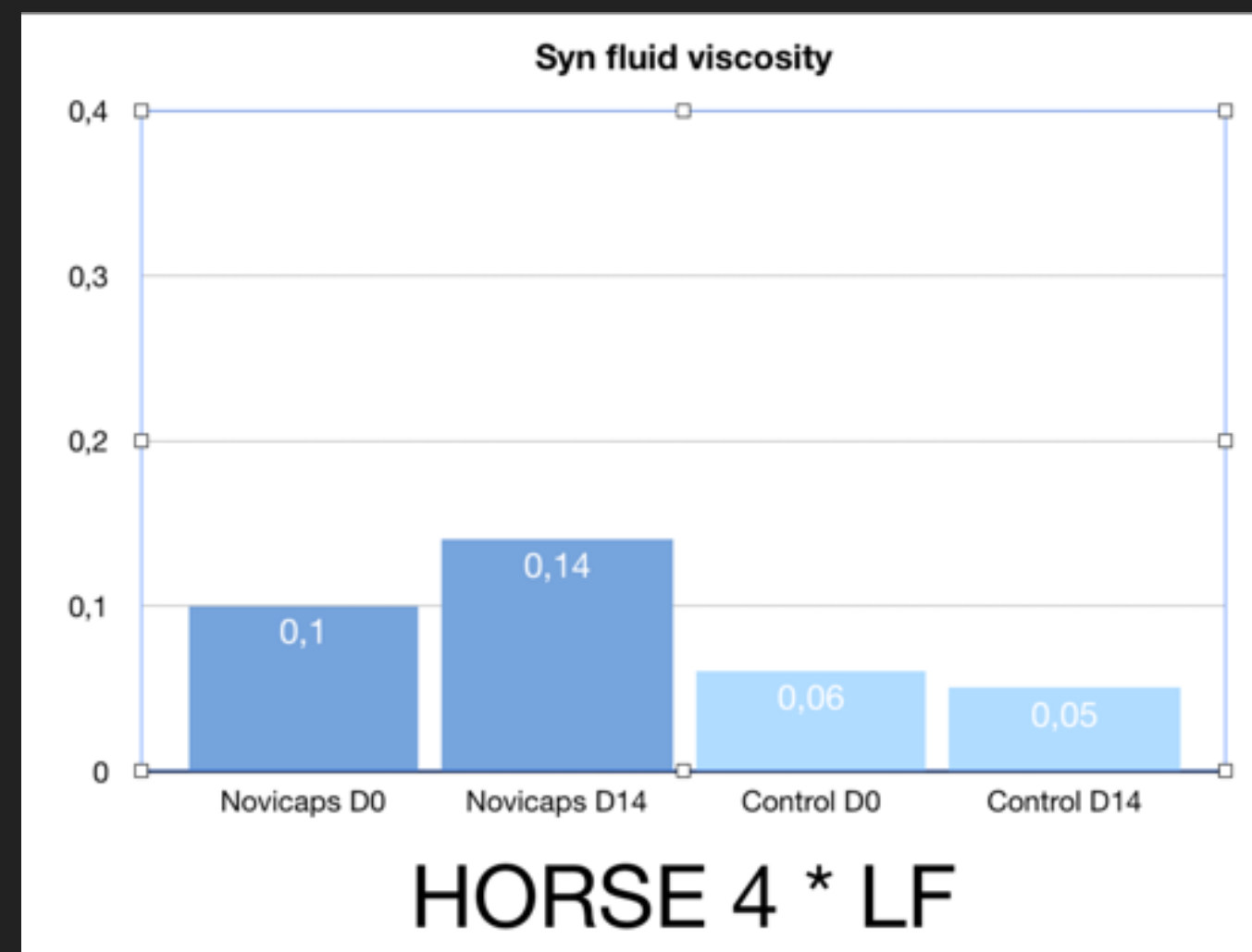
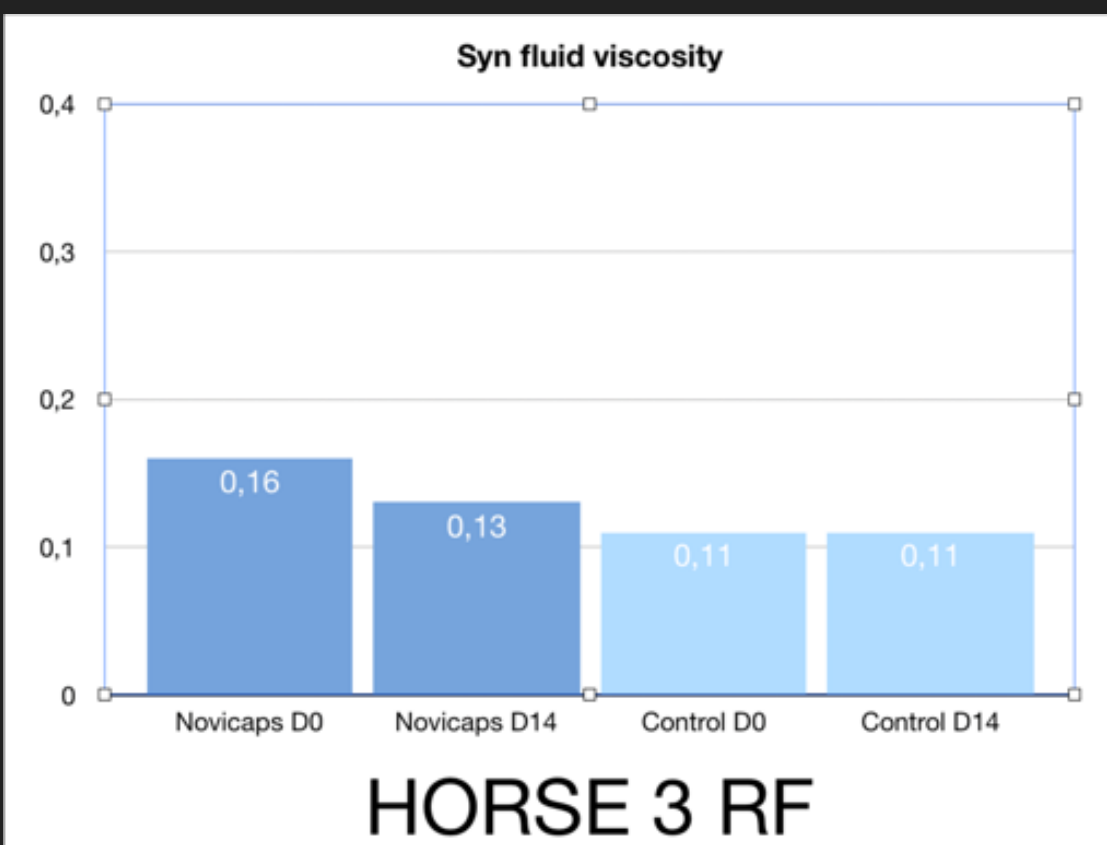
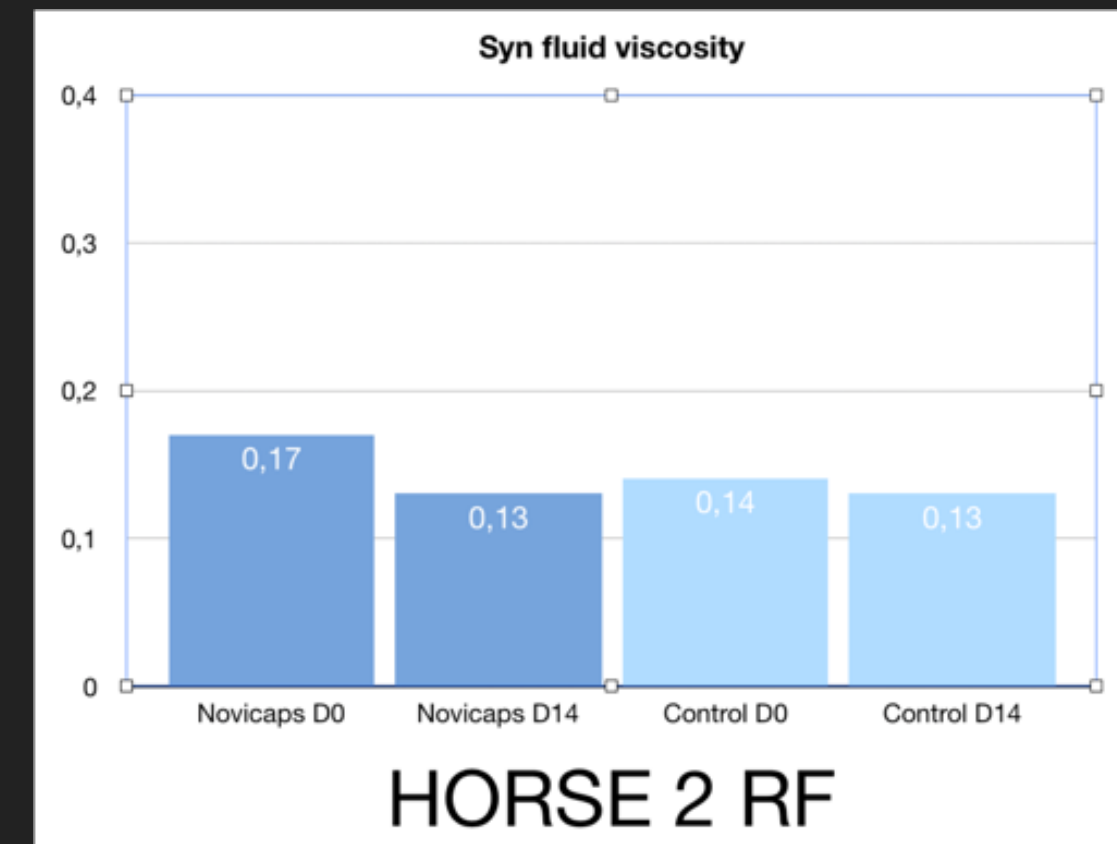
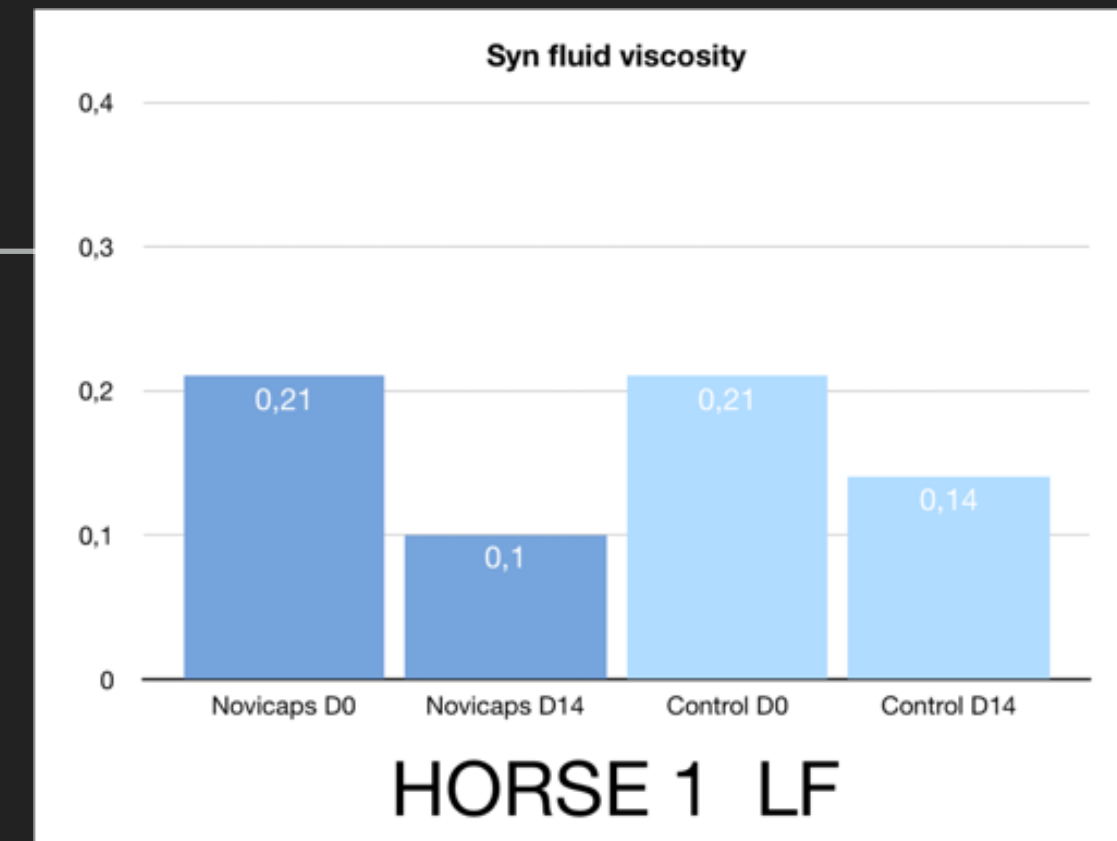
RESULTS – SYNOVIAL FLUID VISCOSITY

- ▶ Decrease in viscosity
- ▶ No difference // control



RESULTS – SYNOVIAL FLUID VISCOSITY

- ▶ Synovial fluid viscosity / horse
- ▶ Increased viscosity if arthroscopy + PC





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**RESULTS
DISCUSSION**

DISCUSSION

- ▶ No sign of inflammation observed
 - ▶ Pain, lameness, heatness
- ▶ Slight fetlock size increase, but better flexion
- ▶ Contribution to decrease inflammation ?
 - ▶ Less fluid and synovial fluid TP decrease
 - ▶ Decreased joint capsule thickness, better flexion
- ▶ Interest of joint lavage / arthro. => decreased viscosity ...?





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**CLINICAL TRIAL
CONCLUSION**

CONCLUSION

- ▶ Good innocuity for PC in joints
- ▶ No short term adverse effects
- ▶ No joint inflammation in 6 tested horses
- ▶ Trends for efficacy
 - ▶ Better flexion amplitude and smaller joint capsule
 - ▶ lowest inflammation parameters
- ▶ Improvement of efficacy after arthroscopy ? ...To be confirmed

