

Introduction and Objective

Passing the 2014 and 2018 Farm Bill Acts stimulated interest in hemp and its derivatives. Cannabidiol (CBD) is being touted as a comprehensive treatment option for a variety of human and animal ailments. Currently, CBD products lack fundamental research pertinent to regulation of product quality and dosing recommendations, particularly in equines where it is frequently being used for behavior modification. Three studies were designed to better understand the effects of CBD supplementation in horses.

Project 1: Pilot

Methods

- ❖ Horse 1: single 50 mg dosage PEL
- ❖ Horse 2: single 50 mg dosage OIL
- ❖ Blood collected 1 and 2 hr post treatment

Results

- ❖ CBD not detected at standard lower limit concentration of 1 ng/ml
- ❖ Detected at 0.05 ng/ml

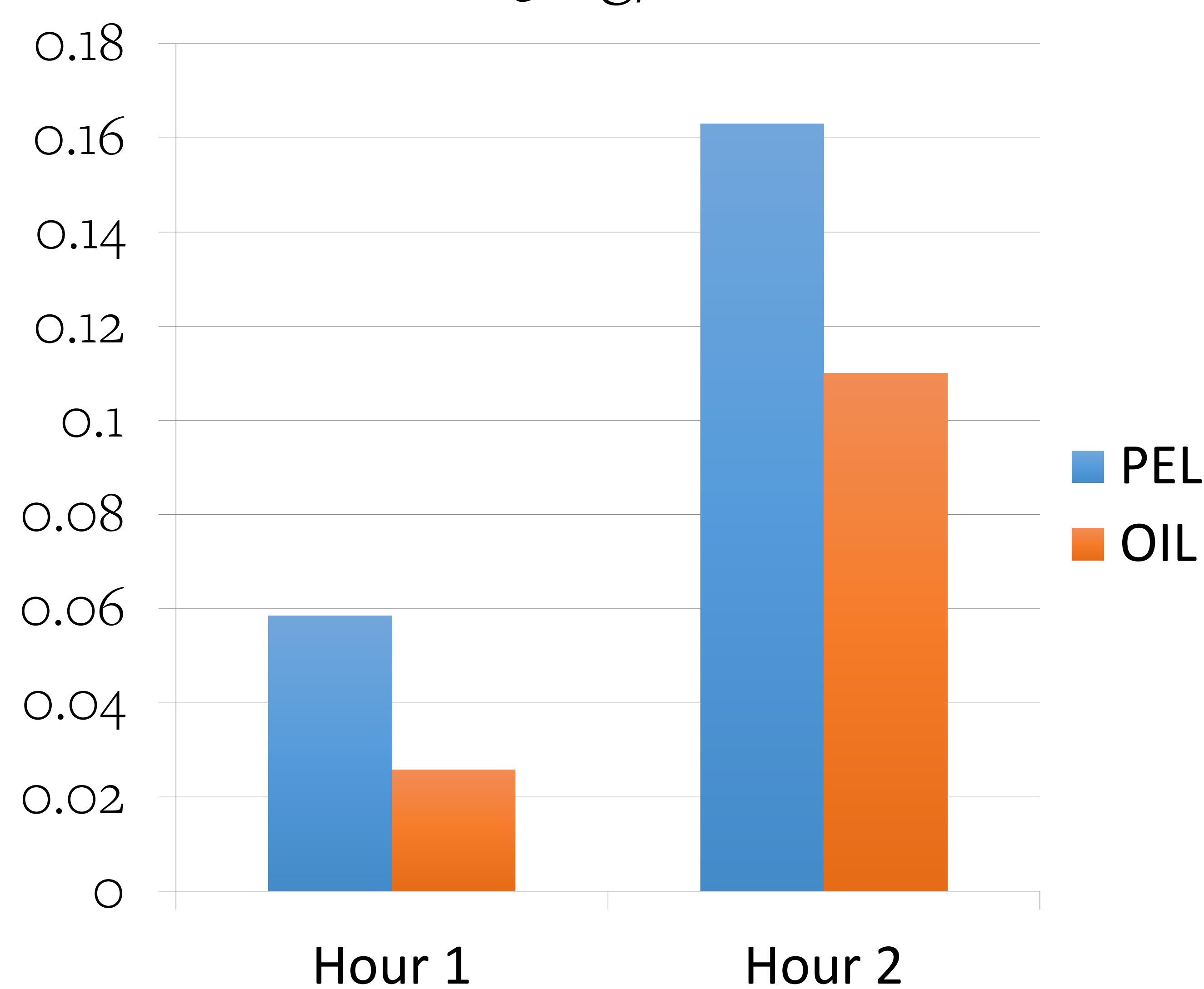


Figure 1. Serum CBD concentration (ng/ml) in horses fed a single 50 mg treatment of pellets

Project 2: Pharmacokinetics

Methods

- ❖ 6 horses: single dosage 50 mg PEL
- ❖ 6 horses: single dosage 100 mg PEL
- ❖ 6 horses: single dosage 250 mg PEL
- ❖ Blood collected pre-treatment and 0.5, 1, 2, 4 and 12 hr post-treatment

Results

- ❖ 250 mg dose consistently detected at 1 ng/ml (n=5/6)
- ❖ Peak concentration and clearance times similar to other species
- ❖ Changes in liver enzymes, but values within normal ranges

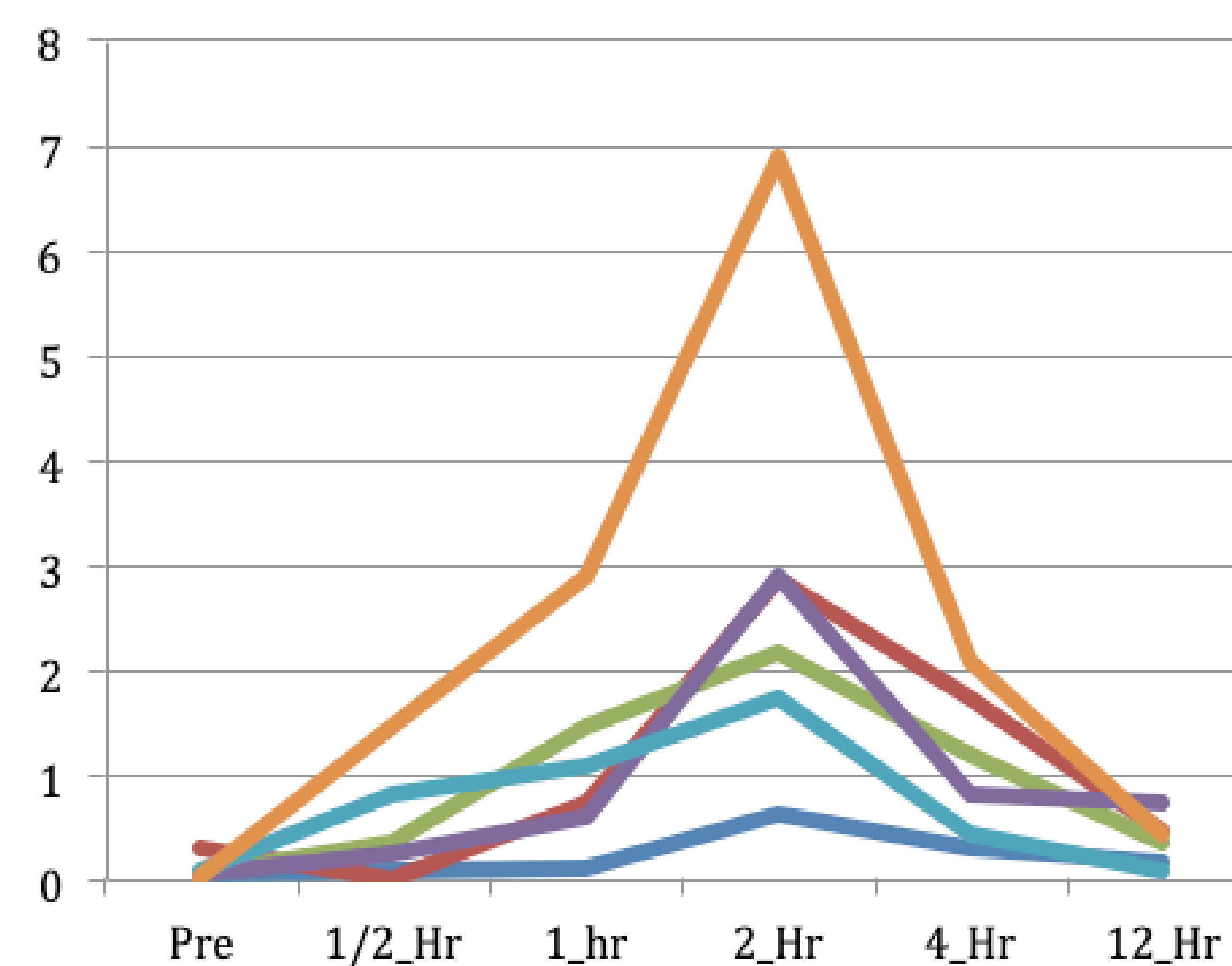


Figure 2. Pharmacokinetics of a single 250 mg treatment of CBD pellets in horses

Acknowledgments

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- ❖ CSU Cancer Center Pharmacology Core

Project 3: Behavior and Movement

Methods

- ❖ 12 horses: 100 mg PEL daily for 12 wk
- ❖ 12 horses: 0 mg PEL
- ❖ Novel object reaction test
- ❖ Flexion and movement evaluations
- ❖ Blood pre-treatment and every 2 wk for 12 wk of supplementation

Project currently in progress.



Figure 3. Novel object reaction test in horses before CBD supplementation

Implications and Further Research

- ❖ Current dosage recommendations for horses (25-50 mg/d) based on small animal dosage and may not be appropriate on body weight basis
- ❖ Supplementation at lower doses may be needed for several weeks before effects seen on behavior in horses, possible accumulation in tissues?
- ❖ Higher doses may have more immediate effect on painful conditions (neuropathy, arthritis?)
- ❖ Liver enzyme changes needs further evaluation