Rice bran oil and flaxseed oil contain omega-3 fatty acids with the potential to reduce post-exercise inflammation and muscle damage. This study observed body fat and muscle parameters, markers of metabolism and inflammation, and fatty acid profiles in lightly worked young horses. All horses participated in an exercise test after 60 days of 25% calorie replacement with crude rice bran oil or a flaxseed oil blend. Results showed that both oils reduced training related inflammation, while the flaxseed blend reduced muscle damage and increased plasma omega-3 fatty acids. Fat and muscle parameters were not negatively impacted by either oil.