Project Title: Ibuprofen Transdermal Delivery via Microemulsion

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Abstract: Oral administration of Ibuprofen presents many challenges. Ibuprofen can cause upset stomach, as a hydrophobic drug it demonstrates poor gastrointestinal absorption due to its low water solubility, and as a result of the first pass response is reduced in concentration by the liver. Topical administration of Ibuprofen as oil-in-water microemulsion increases the bioavailability of the drug and as a result of bypassing the liver all together, increases its safety. In this study, different ratios of Medium-chain triglyceride oil and corn oil were used as solvents to increase the skin permeability of the drug along with Tween 80 surfactant to decrease the surface tension of the microemulsion and keep it in solution. All ratios set in 25% change of oil intervals were stable and the emulsion of 75% MCT, 25% corn oil, and .15g in 8mL DI water produced the smallest droplet sizes at .119 µm.