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**In Vitro Percutaneous Absorption of
Thiamine Disulfide from a Mixture
of Propylene Glycol and
Fatty Acid***

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The in vitro percutaneous transport of thiamine disulfide (TDS), an oxidized dimer of thiamine, from propylene glycol through excised abdominal rat skin was studied. The application of saturated long-chain fatty acids (stearic acid (18 : 0), myristic acid (14 : 0), and lauric acid (12 : 0)) as enhancers to system was also studied. TDS permeated through rat skin from propylene glycol with a flux of $2.5 \pm 0.8 \mu\text{g}/\text{cm}^2/\text{min}$. The flux was enhanced 31 times by 12 : 0 and 1.4 times by 14 : 0, and was suppressed to 80% by 18 : 0. The absorption of TDS could not be explained by TDS permeation across a dialysis membrane, but the interaction between TDS and fatty acids may influence the system. The results show the possibility of developing a transdermal thiamine delivery system.

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