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Measurement of the skin thickness using images of high-frequency ultrasound, in newborns

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Proper Citation

Gabriela Luiza Nogueira Vitral, Regina Amélia P. Lopes Aguiar, Ingrid Michelle Fonseca de Souza, Rodney Nascimento Guimaraes, Zilma Silveira Nogueira Reis 2018. Measurement of the skin thickness using images of high-frequency ultrasound, in newborns. protocols.io dx.doi.org/10.17504/protocols.io.nfgdbjw

Protocol Information

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Summary: The authors describe the skin thickness measurement, based on the analysis of images, obtained using a handheld DermaLab® USB Series ultrasound from Cortex Technology. Epidermis and dermis layers of newborns are obtained by ultrasound scanning. The procedures of the mean thickness determination are pictured. We developed a dedicated software to provide epidermal thickness measurement (IP register BR 51 2017 000061 1). The calculation of the epidermal thickness for each line in the image array was based on the size of the pixel in the frame obtaining 356 thickness values. Using a bootstrap technique in the selected sample size with 70 lines, the software resampled the thickness values 2,000 times. From a Gaussian distribution adjustment curve to the epidermis measurement, the peak was the thickness value, and the full with a half-maximum area was the sigma error value.

Associated Publications: Vitral GLN, Aguiar RAPL, Souza IMFd, Rego MAS, Guimarães RN, Reis ZSN (2018) Skin thickness as a potential marker of gestational age at birth despite different fetal growth profiles: A feasibility study. PLoS ONE 13(4): e0196542. doi: [10.1371/journal.pone.0196542](https://doi.org/10.1371/journal.pone.0196542)

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