# Highlights

* Multi-modal neuroimaging data contain information within modalities and between them.
* Local intermodal coupling (IMCo) can be summarized using covariance decomposition.
* IMCo of blood flow, resting-state fluctuations, and connectivity is heterogeneous.
* This coupling varies over neurodevelopment in specific regions with age and sex.
* IMCo analyses reveal otherwise undetected findings and enable future advancements.