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Motion-corrected free-running 4D MRI of the fetal heart - from *in silico* to *in vivo*

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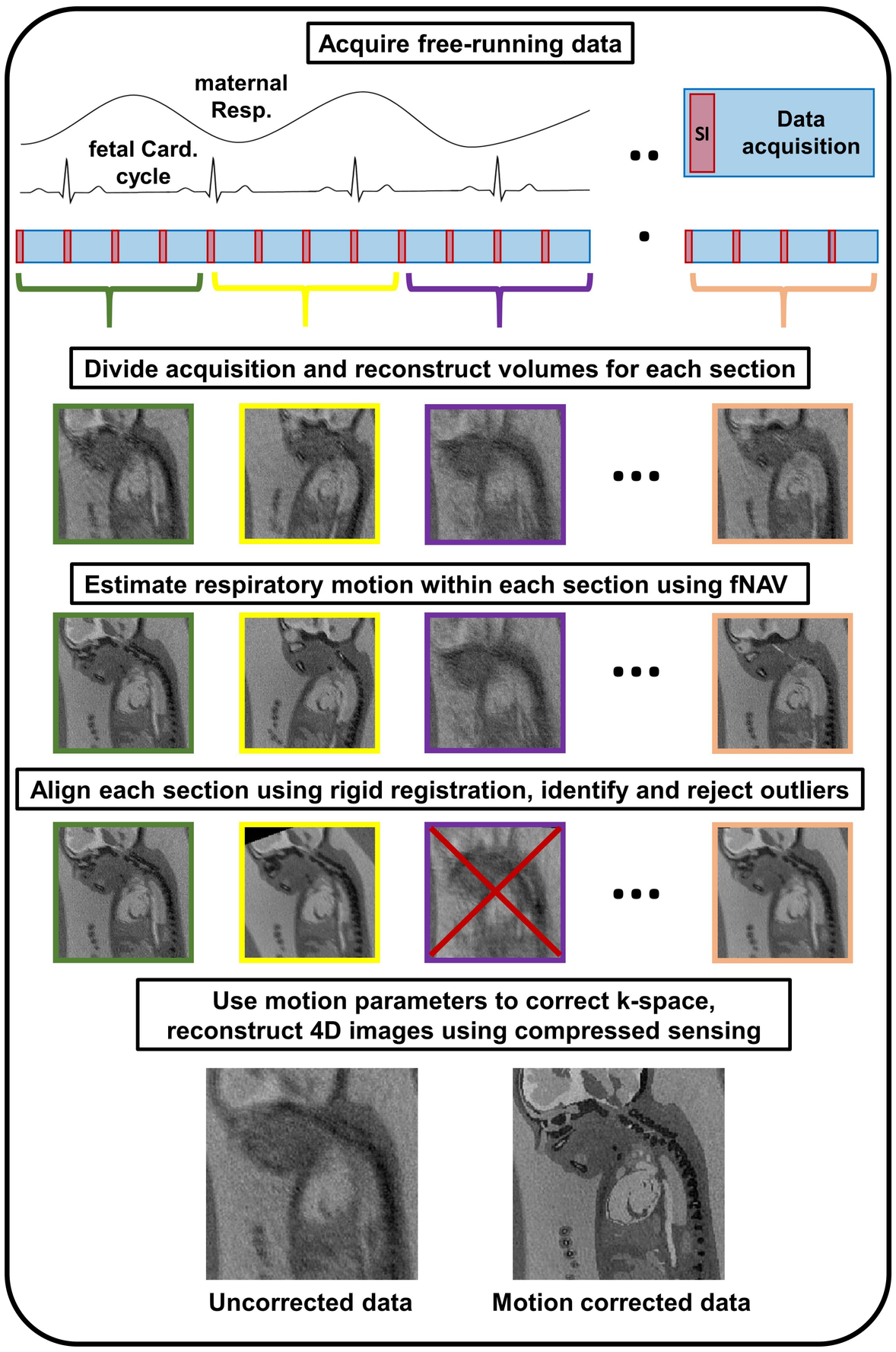
BACKGROUND

- Fetal cardiac MRI suffers from motion blurring (maternal respiration, fetal bulk-movement, fetal cardiac motion).
- 3D radial acquisitions provide simplified scan planning, to guarantee volumetric coverage of the cardiac anatomy [4,5].

AIMS

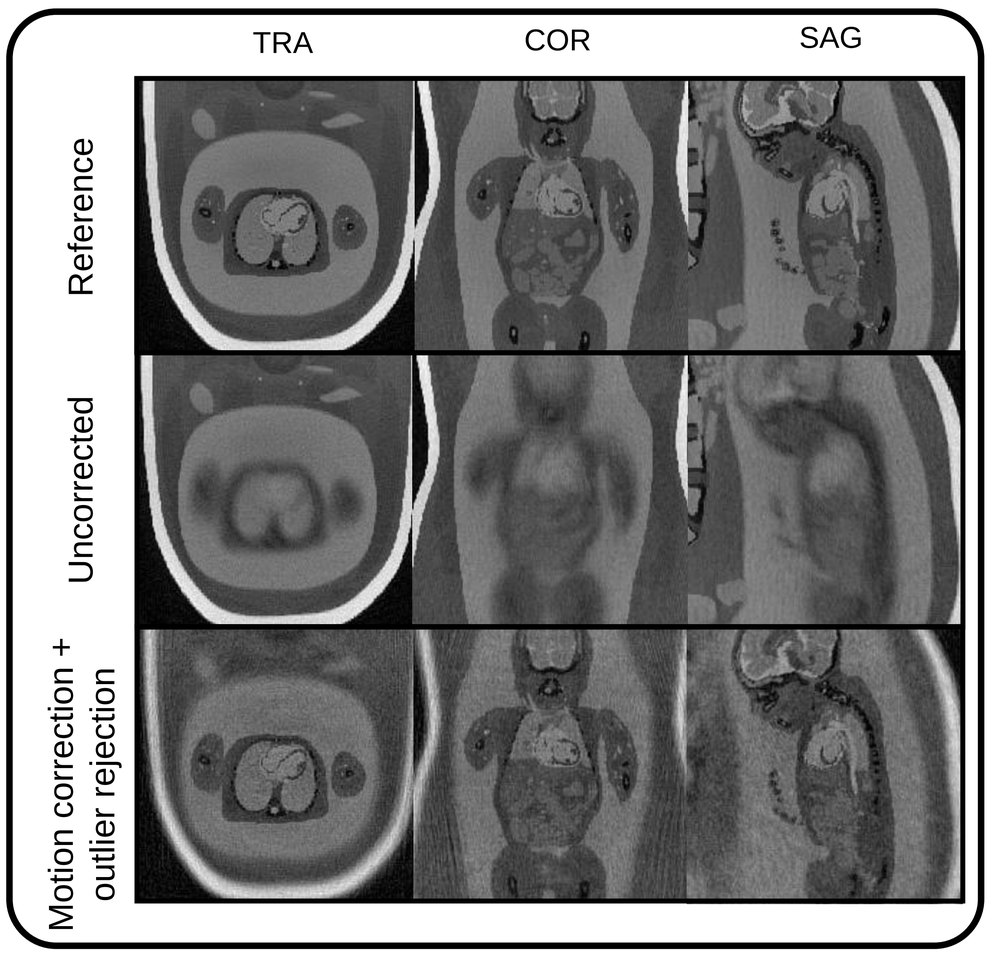
Create motion-corrected 4D images of the fetal heart from 3D radial data acquired *in utero*.

METHODS

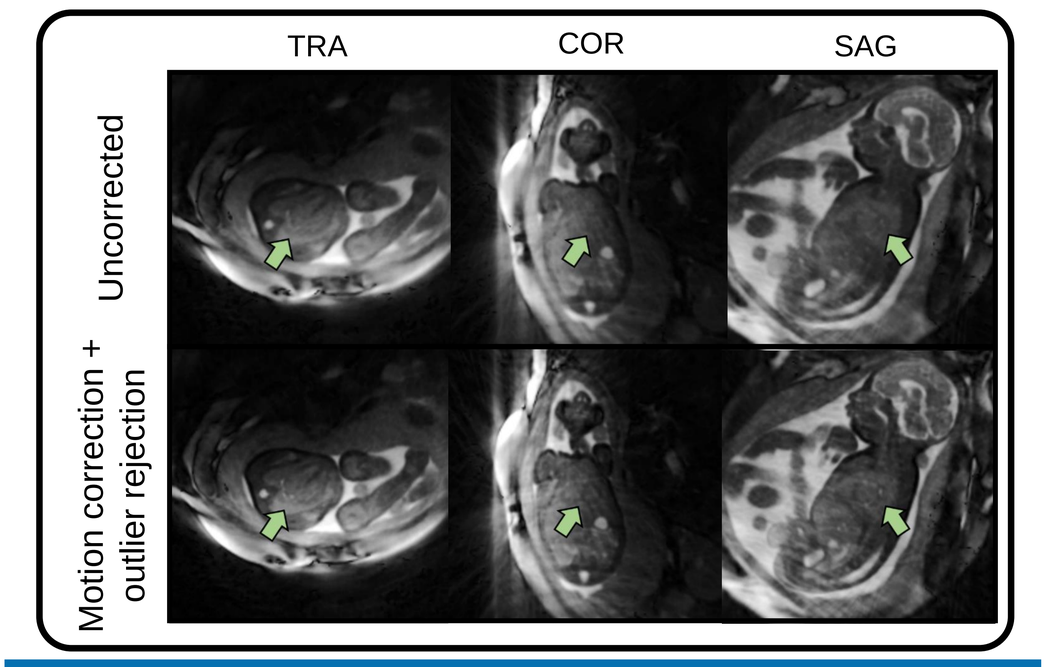


RESULTS

***In silico*:**



***In utero*:**



CONCLUSION

A novel algorithm for motion-corrected dynamic volumetric imaging of the fetal heart was developed. Its initial use was investigated using a numerical simulation and its feasibility was demonstrated *in utero*. Further investigation is required to determine the degree of motion that can be accurately corrected with the goal of developing 3D MRI methods that can help manage cardiovascular disease discovered *in utero.*

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