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**DEPARTMENT:** ANATOMY

**COURSE:**  ANA 206

QUESTION: Discuss the rotation of the intestine

Early in the formation of the primitive gut tube, the endodermal layer recruits the splanchnopleure mesoderm which goes on to become the bowel mesentery, connecting the gut tube posteriorly in the embryo.[[4]](https://www.ncbi.nlm.nih.gov/books/NBK545247/) By week four of development, the division of the gastrointestinal tract into the foregut, midgut, and hindgut has occurred.[[5]](https://www.ncbi.nlm.nih.gov/books/NBK545247/)

The small and large intestines undergo rapid growth during weeks four and five of development. Embryological science believes that the enlarging intestines quickly outgrow the space available in the abdominal cavity causing the entire midgut to herniate into the umbilical cord forming a loop. The superior limb of the intestinal loop forms the ileum while the inferior limb forms the colon. Between the two limbs is the vitelline duct which connects the intestine to the yolk sac. From here, the bowel continues to grow and rotate for the next five weeks as follows:

* The herniated intestine rotates ninety degrees counterclockwise around the mesentery causing the proximal portion of the loop to migrate from the superior position to the right side and the distal portion of the loop to migrate from the inferior position to the left.
* At week ten, the bowel retracts back into the abdominal cavity where it rotates one hundred and eighty degrees more counterclockwise. The cecum is now in the right upper quadrant of the abdominal cavity.
* Enlargement of the large intestine pushes the cecum down into its final position in the right lower quadrant

REFRENCES:

<https://www.ncbi.nlm.nih.gov/books/NBK545247/>