

# Portal circulation

**Portal circulation**, i.e. **hepatic portal system**, is a functional component of hepatic circulation. Its main component is about 8 cm long trunk of the *vena portae*, which arises behind the head of the pancreas at the confluence of the **superior mesenteric vein** and **splenic vein (lienalis)**. The *vena portae* is not a real vein because it does not lead blood directly to the heart. It first leads to the liver, where it breaks down into the secondary capillary network of the liver sinusoids, and then it flows into the *inferior vena cava* and goes to the heart through the *venae hepaticae* system. In addition to the hepatic venous portal system, there is another similar system in the body - the **pituitary portal**.

## Collection area

The collection area of the hepatic portal system are the **unpaired organs of the abdominal cavity**.

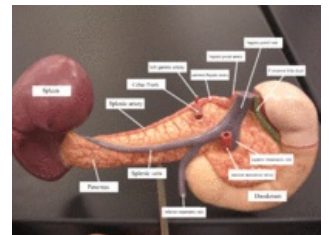
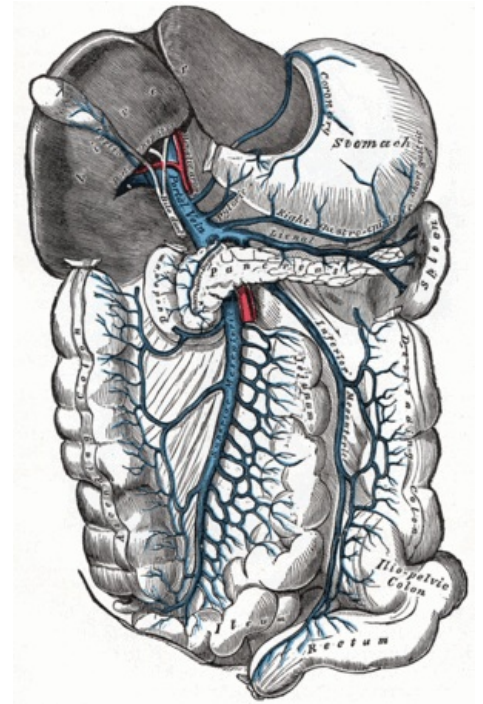
These include:

1. stomach (v. gastroepiploicae sinistrae et vv. gastricae breves -> v. splenica, v. gastroepiploica dextra -> v. mesenterica sup. + v. gastrica dx. + sin. + v. praepylorica -> v. portae)
2. pancreas (vv. pancreaticae -> v. splenica, vv. pancreaticae et pancreaticoduodenales -> v. mesenterica sup. -> v. portae)
3. small intestine (vv. jejunales et ileales -> v. mesenterica sup.)
4. colon (v. appendicularis + v. ileocolica + v. colica dextra et media -> v. mesenterica sup. (ascending and transverse), v. colica sinistra + vv. sigmoideae -> v. mesenterica inf. (descending) -> splenic vein -> v. portae)
5. rectum (v. rectalis sup. (ampulla recti) -> v. mesenterica inf. -> v. splenica -> v. portae)
6. spleen (v. splenica -> v. portae)
7. gallbladder (v. cystica -> v. portae)

Blood from these organs is rich in nutrients, but poor in oxygen. For this reason, in addition to the functional circulation, systemic circulation must be introduced into the liver. Systemic circulation is supplied by *proper hepatic artery* (or *accessory hepatic artery* in 30% of cases). Both of these vessels come to the liver in a duplicate of the peritoneum going from the duodenum to the *porta hepatis* - *lig. hepatoduodenale*, which is part of the small omentum (*omentum minus*).

The individual venous strains accompany the corresponding arteries (*a. Mesenterica sup.*, *A. Mesenterica inf.*, *A. Splenica*) during their course, but in the area of *flexura duodenojejunalis* they begin to move away from the arteries, they connect and the resulting *v. Portae*. It then rises as part of the **hepatic trias** (*v. portae* + *a. Hepatica propria* + *ductus hepaticus communis*) most dorsally to its entry into the liver in the *porta hepatis*.

In case of obstruction of the hepatic circulation (or some of the veins of the portal system), functional connections to the body circulation are created, which are able to ensure the drainage of blood from the *v. Portae system*. These functional joints are called portocaval anastomoses and their spread is an important diagnostic feature of so-called portal hypertension.



Formation of vena portae

## Links

### Related articles

- Portal vein
- Portocaval anastomoses
- Cavocaval anastomoses
- Portal hypertension

### Bibliography

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- HUDÁK, Radovan a David KACHLÍK, Memorix anatomy, Edra Urban & Partner (1 Jan. 2016), ISBN-13 : 978-

