**Table 19. Regional Blood Flow Distribution As Percent Cardiac Output in Adult Cattle**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **SD** | **Number of Animals** | **Number of Studies** | **References** |
| Muscle | 28 | 9 | 13 | 2 | 1, 2 |
| Kidneys | 10 | 9 | 75 | 4 | 3-6 |
| Liver | 46 | 25 | 331 | 8 | 3, 6, 7-12 |
| Hepatic Artery | 8 | 7 | 152 | 2 | 8, 10 |
| Portal Vein | 39 | 22 | 399 | 9 | 3, 6-13 |
| Uterus | 0.08 | 0.07 | 12 | 3 | 14-16 |
| Ovary | 0.005 | 0.002 | 3 | 1 | 15 |
| Testes | 0.03 | 0.01 | 14 | 1 | 17 |

Note: The studies involved in the regional blood flow calculations are: 1. Eisemann et al. (1987); 2. Eisemann et al. (1988); 3. Reynolds et al. (1991a) ; 4. Delaquis and Block (1995); 5. Deetz et al. (1982); 6. Reynolds et al. (1991b) ; 7. Huntington et al. (1990); 8. Røjen et al. (2011); 9. Lescoat et al. (1996); 10. Ellis et al. (2016); 11. Huntington et al. (1989); 12. Whitt et al. (1996); 13. Reynolds and Huntington (1988); 14. Ford et al. (1979); 15. Ford and Chenault (1981); 16. Rawy et al. (2018); 17. Barros Adwell et al. (2018).

**Table 21. Regional Blood Flow Distribution As Percent Cardiac Output in Beef Cattle**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **SD** | **Number of Animals** | **Number of Studies** | **References** |
| Muscle | 28 | 9 | 13 | 2 | 1, 2 |
| Kidneys | 11 | 8 | 54 | 3 | 3-5 |
| Liver | 44 | 25 | 285 | 7 | 3, 5-10 |
| Hepatic Artery | 7 | 7 | 111 | 1 | 8 |
| Portal Vein | 38 | 22 | 353 | 8 | 3, 5-11 |
| Testes | 0.03 | 0.01 | 14 | 1 | 12 |

Note: The studies involved in the regional blood flow calculations are: 1. Eisemann et al. (1987); 2. Eisemann et al. (1988); 3. Reynolds et al. (1991a); 4. Deetz et al. (1982); 5. Reynolds et al. (1991b); 6. Huntington et al. (1990); 7. Lescoat et al. (1996); 8. Ellis et al. (2016); 9. Huntington et al. (1989); 10. Whitt et al. (1996); 11. Reynolds and Huntington (1988); 12. Barros Adwell et al. (2018).

**Table 23. Regional Blood Flow Distribution As Percent Cardiac Output in Dairy Cows**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **SD** | **Number of Animals** | **Number of Studies** | **References** |
| Kidneys | 7 | 10 | 21 | 1 | 1 |
| Liver | 58 | 19 | 41 | 2 | 2, 3 |
| Hepatic Artery | 10 | 6 | 41 | 2 | 2, 3 |
| Portal Vein | 49 | 17 | 41 | 2 | 2, 3 |
| Mammary Gland | 13 | 6 | 119 | 2 | 4, 5 |
| Uterus | 0.075 | 0.069 | 12 | 3 | 6-8 |
| Ovary | 0.005 | 0.002 | 3 | 1 | 6 |

Note: The studies involved in the regional blood flow calculations are: 1. Delaquis and Block (1995); 2. Røjen et al. (2011); 3. Ellis et al. (2016); 4. Lescoat et al. (1996); 5. Davis et al. (1988); 6. Ford et al. (1979); 7. Ford and Chenault (1981); 8. Rawy et al. (2018).

**Table 24. Regional Blood Flow Distribution As Percent Cardiac Output in Calves**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Mean** | **SD** | **Number of Animals** | **Number of Studies** | **References** |
| GI Tract | 11 | 4 | 8 | 1 | 1 |
| Heart | 6 | 2 | 21 | 2 | 2, 3 |
| Kidneys | 10 | 3 | 30 | 2 | 4, 5 |
| Liver | 30 | 11 | 12 | 2 | 4, 6 |
| Hepatic Artery | 4 | 1 | 17 | 2 | 6, 7 |
| Portal Vein | 28 | 9 | 62 | 12 | 4, 6-16 |
| Lungs | 46 | 25 | 16 | 1 | 17 |

Note: The studies involved in the regional blood flow calculations are: 1. Conard et al. (1958); 2. Manohar et al. (1981); 3. Manohar et al. (1982); 4. Reynolds et al. (1991a); 5. Wanner et al. (1981); 6. Ortigues et al. (1995); 7. Durand et al. (1984); 8. McGilliard et al. (1971); 9. Fries and Conner (1961); 10. Huntington et al. (1989); 11. Harmon and Avery (1987); 12. Wangsness and McGilliard (1972); 13. Huntington and Prior (1983); 14. Huntington et al. (1989); 15. Carr and Jacobson (1968); 16. Durand et al. (1988); 17. Rudolph and Yuan (1966).

**Table 28. Regional Blood Flow Distribution As Percent of Cardiac Output in Swine**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Swine Blood Flow (Percent Cardiac Output)** | | | | | |
|  | Mean | SD | Number of Animals | Number of Studies | References |
| Brain | 1.5 | 0.4 | 35 | 3 | 1-3 |
| Thyroid | 0.13 | 0.08 | 9 | 1 | 4 |
| Adrenal | 0.06 | 0.04 | 43 | 4 | 2-5 |
| Pancreas | 1.4 | 0.5 | 9 | 1 | 4 |
| Muscle | 34.2 | 30.6 | 45 | 4 | 2,3,5,6 |
| Skin | 3.5 | 1.6 | 34 | 3 | 2,3,5 |
| Heart | 3.0 | 0.6 | 9 | 1 | 1 |
| Kidneys | 11.4 | 3.2 | 56 | 5 | 1-4,7 |
| Hepatic Artery | 4.4 | 2.9 | 55 | 5 | 1-4,6 |
| Portal Vein | 19.9 | 4.6 | 32 | 3 | 8-10 |
| Spleen | 3.1 | 1.2 | 52 | 5 | 1-5 |
| Stomach | 2.1 | 1.1 | 34 | 4 | 1,35 |
| Small Intestine | 15.3 | 7.7 | 52 | 5 | 1-5 |
| Large Intestine | 5.1 | 1.1 | 18 | 2 | 1,4 |

Note: The regional blood flow fractions of swine were calculated based on the following studies: 1. Tranquilli et al. (1982); 2. Duncker et al. (1997); 3. van Woerkens et al. (1990); 4. Manohar and Parks (1984); 5. van Woerkens (1992); 6. Lundeen et al. (1983); 7. Hannon et al. (1990); 8. Yen et al. (1989); 9. O’Connor et al. (1992); 10. Yen and Killefer (1987). If no cardiac output reported in a specific study, the regional blood flow fractions were calculated using the average cardiac output of swine reported in Table 17.