Autologous blood transfusion means donating a number of units of your blood for your own use up to five weeks before planned surgery. The idea and concept of collecting blood of a patient and returning it to him is more than 100 years old. However it was not popularized until 1968, when Klebanoff described a simple technique whereby blood shed during surgery can be recovered. In 1975, M Orr and R Gilcher utilized a blood washing technique developed by Jack Latham with the help of centrifuge machine in three separate steps: separation of blood plasma, cleansing with saline solution and emptying the red blood vessels into a bag for re-infusion.

During the last two decades autologous blood transfusions developed into a widespread routine procedure. The increasing worries about pathogens such as HIV and the hepatitis virus in banked blood has meant that autotransfusion technology has shifted back into the center of attention. Now there is a worldwide acceptance to autologous blood transfusion in medical practice. The most well developed country like USA adopted autologous blood transfusion in routine practice. It means that the blood you receive during an operation will match yours and therefore reduces the slightest risk of getting an allergic reaction. About 25% of the blood transfusions in USA are
autologous in nature. In India the scenario is rather poor, as autologous blood transfusion is not yet well accepted by the public as well as by surgeons. Moreover recent inclusion of Medical Services under “consumer protection act” made it more difficult by the physician and surgeons to accept it.

**Advantages of Autologous Blood Transfusion:**

There are several advantages of autologous blood transfusion:

1. It avoids the risk of Transfusion Transmitted Infections (TTI).
2. There is no risk of blood incompatibility.
3. It eliminates the risk of Allo-sensitization.
4. There is no risk of febrile illness or allergic reaction.
5. It can be given to a patient who refuses to accept blood on religious ground.

**But there are few disadvantages also:**

2. Anaemia and hypovolemia of patients.
3. Circulatory over load during transfusion.
4. Blood units may be lost if the surgery is postponed.
5. Blood collected for autologous transfusion may not meet out the demand and vice versa.
It is very essential to evaluate patient with extra care for autologous transfusion. A patient for autologous transfusion should be between 18-60 yrs of age, but autologous transfusion can be successful managed between 8-60 yrs of age. Haemoglobin should be >12 gm% with minimum body weight of 45 Kg. With the above criteria the blood can be collected and deposited for autologous transfusion by leap frog technique:

<table>
<thead>
<tr>
<th>Withdrawal time</th>
<th>Unit of blood collected</th>
<th>Unit re infused</th>
<th>Units left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>A (1)</td>
<td></td>
<td>A (1)</td>
</tr>
<tr>
<td>Day 7</td>
<td>B,C (2)</td>
<td>A</td>
<td>B,C</td>
</tr>
<tr>
<td>Day 14</td>
<td>D,E (2)</td>
<td>B</td>
<td>C,D,E</td>
</tr>
<tr>
<td>Day 21</td>
<td>F,G (2)</td>
<td>C</td>
<td>D,E,F,G</td>
</tr>
<tr>
<td>Day 28</td>
<td>H,I (2)</td>
<td>D</td>
<td>E,F,G,H,I</td>
</tr>
</tbody>
</table>

Thus on 28th day five units of blood will be available.

All patients are not suitable for autologous blood transfusion. The risk of autologous blood transfusion rests with the doctor undertaking blood collection. One should never withdraw blood more than 12% of blood volume. The TTI tests must be carried out in autologous blood transfusion also. Blood bank can only preserve blood bags showing transfusion-transmitted infections negative.
Donor Consent:

The patient donor must be informed for autologous transfusion and a written consent must be obtained. The consent also include release of blood for homologous transfusion to any needy patient. If a donor is minor, consent should be obtained from the legal guardian.

Indications for Autologous Blood Transfusion:

Preoperative:

- Elective Surgery: Whenever there is a high probability of blood loss.
- Bone marrow donors: In children after marrow donation.
- Rare groups: In rare group, due to poor availability it can be used significantly.
- Aseptic hemoperitonium: In ruptured ectopic or rupture spleen, blood can be collected from peritoneum. It needs special device for collection, filter, anticoagulants for mixing and transfusion.

Intra-operative:

In aseptic hemoperitoneum due to ruptured ectopic gestation or ruptured spleen operative salvage is performed. The blood after citration & filtration immediately transfused. Such salvaged blood is not used for other patients. This procedure is contraindicated in septicemia and malignancies.

Post Operative:

Several devices are available to collect and reinfuse blood from thoracic, mediastinal and orthopedic drainage’s after surgery. It is preferred to wash RBCs before transfusion.
A. **Canister type:** It is simple lightweight economical equipment. In this technique, salvage blood is mixed with anticoagulant and filtered by vacuum pump. Blood is collected in a disposable liner bag and transfused.

B. **Automated type:** It is based on centrifuge assisted, semi continuous-flow technology. There are few fully automatic computerized units, which completes process within 3-5 minutes.

C. **Hemodilution and short-term storage:** In this procedure blood is collected just before surgery and stored for a short while. One or two units of blood collected just before or after induction of anesthesia prior to surgery with simultaneous infusion of crystalloid to produce normal volume. It helps by loss of hemodiluted blood and replaced by better hemoglobin autologous blood.

**Conclusion:**

Patient, who needs planned surgery, should have careful preoperative assessment. If a patient is fit for autologous transfusion this could be considered seriously as it is one of the best alternative in the era of HIV/AIDS.