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Kidney matching



What does it mean for a donor and me to be a match?

A match happens if the donor and recipient have compatible blood types. This is to raise the chance that the recipient's body accepts the new kidney.

Who matches donors and recipients?

The United Network for Organ Sharing (UNOS) has a massive, centralized computer network system that helps match deceased donor organs with recipients in transplant centers all around the country. This network runs 24 hours a day, seven days a week. All patients on the deceased donor waitlist are entered into this system as a pool that the computer draws from when making matches.

The computer system is responsible for matching you with a donor who it thinks will give you the best chance of living longer and healthier with a new kidney. When an organ offer is available, your transplant team will be told and they will call you right away. There are many things the computer considers when making matches, such as your place on the waitlist and the biological matching factors explained below.

How are donors and recipients matched for transplant?

Donors and recipients have blood tests to see if they are good matches. Matching is based on 3 factors: **blood type**, **tissue type**, and **crossmatching**. Matching on these factors lowers the chance of rejection.


Blood type matching:

All people have a blood type of either O, A, B, or AB. The donor and recipient must have blood types that are compatible, as shown below:

A recipient with this blood type...	Can get a kidney from a donor with this blood type:
Type O	Type O
Type A	Types O and A
Type B	Types O and B
Type AB	Types O, A, B, and AB (all types)

Kidney donors must have a compatible blood type with the recipient.

In living donation, these blood types are compatible:

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> • Donors with blood type A... can donate to recipients with blood types A and AB • Donors with blood type B... can donate to recipients with blood types B and AB • Donors with blood type AB... can donate to recipients with blood type AB only • Donors with blood type O... can donate to recipients with blood types A, B, AB and O (<i>O is the universal donor: donors with O blood are compatible with any other blood type</i>) |  | <ul style="list-style-type: none"> • Recipients with blood type O... can receive a kidney from blood type O only • Recipients with blood type A... can receive a kidney from blood types A and O • Recipients with blood type B... can receive a kidney from blood types B and O • Recipients with blood type AB... can receive a kidney from blood types A, B, AB and O (<i>AB is the universal recipient: recipients with AB blood are compatible with any other blood type</i>) |
|---|---|--|

Tissue type (HLA) matching:

Blood tests can show the tissue (HLA) type of the donor and recipient and the level of HLA antibodies in the recipient's blood. Antibodies are proteins in the blood that help the body fight disease. A recipient with HLA antibodies is **sensitized** to that HLA type, which means that the recipient has antibodies to cells and tissues with that HLA type.

Tissue typing (or genetic typing)

- Tissue typing is a blood test that matches the number of antigens the donor and recipient share. These antigens can recognize the difference between two people's body tissue.

- Each person has six basic tissue typing antigens (or markers) shared equally from their parents. The markers help tell which donor will be the best match between the recipient and donor. A parent and child would have at least 50 percent match while siblings could have a zero to 100 percent match.
- The best match for the recipient is to have six of six antigens match (known as a zero mismatch). It is possible for all six markers to match.
- It is not necessary that you match your antigens for a successful transplant. Even matching one antigen with a living donor may make for a more successful transplant than matching five or six antigens from a deceased donor kidney.

Crossmatching

Blood tests can also show if the recipient has antibodies against the donor's cells. When antibody levels are high, the recipient's body will attack the donor organ. This is called a positive crossmatch.

**Positive
crossmatch**

Incompatible

If a donor organ and the prospective recipient are incompatible, transplant isn't possible.

If this happens when a prospective living donor gets tested to see if they can donate a kidney to their intended recipient, they may still be able to help them get a kidney by participating in something called kidney paired donation or KPD.

**Negative
crossmatch**

Compatible

If a donor organ and the prospective recipient are compatible, transplant is possible.

With a negative crossmatch, the living donor can donate their kidney directly to their intended recipient. They may also still choose to donate through KPD.