



Living Liver Donation: Medical Toolkit

CHAPTER • 13

Liver donation if you have pre-diabetes or metabolic syndrome

What are pre-diabetes and metabolic syndrome?

Pre-diabetes means your blood sugar (glucose) is higher than normal but not high enough to be diabetic. It raises your chance of getting diabetes.

Metabolic syndrome means you have 3 or more of these:

- Your waist measures over 40 inches if you were born a man, or over 35 inches if you were born a woman (waist circumference)
- Blood sugar level over 100 mg/dL before you eat anything in the morning (fasting glucose)
- High “bad” cholesterol levels:
 - LDL over 130 mg/dL
 - Triglycerides over 150 mg/dL
- “Good” cholesterol levels (HDL) less than 40 mg/dL if you were born a man, or less than 50 mg/dL if you were born a woman
- High blood pressure over 130/80 mm Hg

Both pre-diabetes and metabolic syndrome raise your chance of having these health problems:

- Type 2 diabetes, which can make it harder for your liver to regrow after liver donation
- Heart disease
- Fatty liver (build-up of extra fat in your liver that can lead to scarring in your liver)
- Problems during or after liver donation surgery, such as your surgery site not healing well or a hernia (opening of the muscle at the surgery site)

What causes pre-diabetes and metabolic syndrome?

Both conditions are closely related to being overweight or having obesity, and not being active.

How will I know if I have pre-diabetes or metabolic syndrome?

As part of your living liver donor evaluation, you will have blood tests and imaging tests of your belly (abdomen) to see if you have pre-diabetes or any of the health conditions that are part of metabolic syndrome.

Can I donate if I have pre-diabetes or metabolic syndrome?

If you have pre-diabetes or metabolic syndrome, you may not be able to donate because it raises your chance of having a problem during or after donation surgery.

You may be able to donate if you take steps to reverse pre-diabetes or metabolic syndrome, which means getting your levels back to healthy ranges. Talk with your doctor about ways to reverse pre-diabetes or metabolic syndrome which may include to:

- Follow a healthy eating plan, in which you eat low-fat foods and fewer calories
- Be active most days of the week
- Lose weight
- Drink less alcohol
- Stop smoking if you are a current smoker

REFERENCES

1. Huang PL. A comprehensive definition for metabolic syndrome. *Disease Models & Mechanisms*. 2009 May-Jun;2(5-6):231-237.
2. Bhayani NH, Hyder O, Frederick W, et al. Effect of metabolic syndrome on perioperative outcomes after liver surgery: A National Surgical Quality Improvement Program (NSQIP) analysis. *Surgery*. 2012 Aug; 152(2):218-226.
3. Sugerma HJ, Kellum JM Jr, Reines HD, et al. Greater risk of incisional hernia with morbidly obese than steroid-dependent patients and low recurrence with prefascial polypropylene mesh. *Am J Surg* 1996;171:80-4.



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CHAPTER • 13

4. Wick EC, Hirose K, Shore AD, et al. Surgical site infections and cost in obese patients undergoing colorectal surgery. *Arch Surg* 2011;146:1068-72.
5. Mendes-Braz M, Martins JO. Diabetes mellitus and liver surgery: the effect of diabetes on oxidative stress and inflammation. *Mediators of Inflammation*. 2018 May 8; 2018:2456579.
6. Marsman WA, Wiesner RH, Rodriguez L, Batts KP, Porayko MK, Hay JE, Gores GJ, Krom RA. Use of fatty donor liver is associated with diminished early patient and graft survival. *Transplantation*. 1996; 62:1246-1251.

Note: This information is the opinion of the Living Donor Community of Practice (LDCOP) of the American Society of Transplantation. The LDCOP is a group of health care professionals and researchers who specialize in living donation. The LDCOP's recommendations are meant to offer you helpful information, but you may find opinions from other groups or organizations that are helpful to you, too.