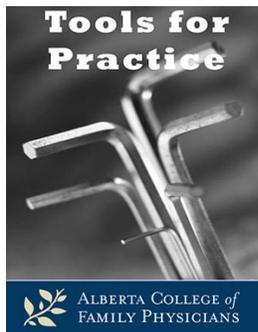


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Can I get my cholesterol checked fast (without fasting)?

Clinical Question: Can non-fasting lipid levels be used to predict future cardiovascular disease (CVD) risk?

Bottom-line: Minimal differences exist between fasting and non-fasting HDL, LDL, and total cholesterol (TC). Also, non-fasting HDL and non-HDL levels correlate with future CVD events. Therefore, fasting for lipid testing is not required.

Evidence:

- Surrogate Outcomes: Lipid results:
 - Cross sectional study of >200,000 Canadians (mean age 52.8 years, 53.1% female) examined fasting intervals (1-16 hours) on lipids.¹ Fasting changed lipid levels by:
 - <2% for TC and high density lipoprotein (HDL).
 - ~10% for low density lipoprotein (LDL).
 - ~20% for triglycerides.
 - Cross sectional study of 33,391 Danish patients (mean age 60, 53% women) found maximal changes between lipid levels collected 0 to >8 hours post-fasting were:²
 - -0.2mmol/L for LDL and TC.
 - -0.1mmol/L for HDL.
 - +0.3mmol/L for triglycerides.
 - Smaller studies where fasting and non-fasting lipids were done on the same patients found similar results:
 - Small changes in TC, HDL,^{3,4} and LDL.⁴⁻⁷
 - Larger changes in triglycerides⁴ especially after a high fat meal.⁵⁻⁷
 - These small changes are unlikely to significantly effect cardiovascular risk prediction and are less than the within person variation of repeat lipids.⁸
- Clinical Outcomes: Cardiovascular events:
 - A large compilation of prospective cohort studies examined 302,430 individual patient records, (mean age 59 years, 43% women) with 2.8 million person-years of follow-up demonstrated:⁹
 - Non-fasting and fasting HDL and non-HDL cholesterol similarly predicted CVD risk.

- After adjusting for HDL and non-HDL, triglycerides did not predict CVD risk.

Context:

- Restricting patients to fasting before laboratory testing may contribute to:
 - Testing non-adherence.
 - Fluctuations in laboratory demand and wait times.
 - Hypoglycemia in diabetic patients.¹⁰
- Guidelines differ regarding lipid testing: some recommend¹¹ or prefer¹² fasting, while others do not require fasting.¹³

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Disclosure:

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References:

1. Sidhu D, Naugler C. *Arch Intern Med.* 2012; 172:1707-1710.
2. Langsted A, Freiberg JJ, Nordestgaard BG. *Circulation.* 2008; 118: 2047-56.
3. Craig SR, Amin RV, Russell DW, *et al.* *J Gen Intern Med.* 2000; 15:395-9.
4. Wilder LB, Bachorik PS, Finney CA, *et al.* *Am J Med.* 1995; 99:374-7.
5. Schaefer EJ, Audelin MC, McNamara JR, *et al.* *Am J Cardiol.* 2001; 88:1129-33.
6. Lund SS, Petersen M, Frandsen M, *et al.* *Clin Chem.* 2011; 57:298-308.
7. Cohn JS, McNamara JR, Schaefer EJ. *Clin Chem.* 1988; 34:2456-9.
8. Glasziou PP, Irwig L, Heritier S, *et al.* *Ann Intern Med.* 2008; 148:656-61.
9. The Emerging Risk Factors Collaboration. *JAMA.* 2009; 302:1993-2000.
10. Aldasouqi S, Sheikh A, Klosterman A, *et al.* *Diabetes Care* 2011; 34:e52.
11. The Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and the European Atherosclerosis Society (EAS) ESC/EAS Guidelines for the management of dyslipidaemias. *Eur Heart J.* 2011; 32:1769-1818.
12. Stone NJ, Robinson J, Lichtenstein AH, *et al.* 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults. *Circulation.* 2014; 129(25 suppl 2):S1-S45.
13. National Institute for Health and Care Excellence. Lipid modification: Cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. July 2014. Available at <http://www.nice.org.uk/Guidance/CG181>. Accessed May 25, 2014.

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