

ADULT TRACK

PROTECTING HEARTS AND KIDNEYS



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EPIC DIABETES CONFERENCE

MAY 20, 2023 | SHERATON DENVER DOWNTOWN HOTEL

EMPOWERING PATIENTS
FOR
INDIVIDUALIZED CARE



CONFLICTS OF INTEREST

Dr. Perreault has received person fees for speaking and/or consulting from Novo Nordisk, Sanofi, Boehringer Ingelheim, Elli Lilly, Bayer, NeurBo, Medscape, WebMD, and UpToDate.



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THE FIRST DIAGNOSTIC CRITERIA FOR DIABETES

Classification and Diagnosis of Diabetes Mellitus and Other Categories of Glucose Intolerance

NATIONAL DIABETES DATA GROUP

DIABETES, VOL. 28, DECEMBER 1979

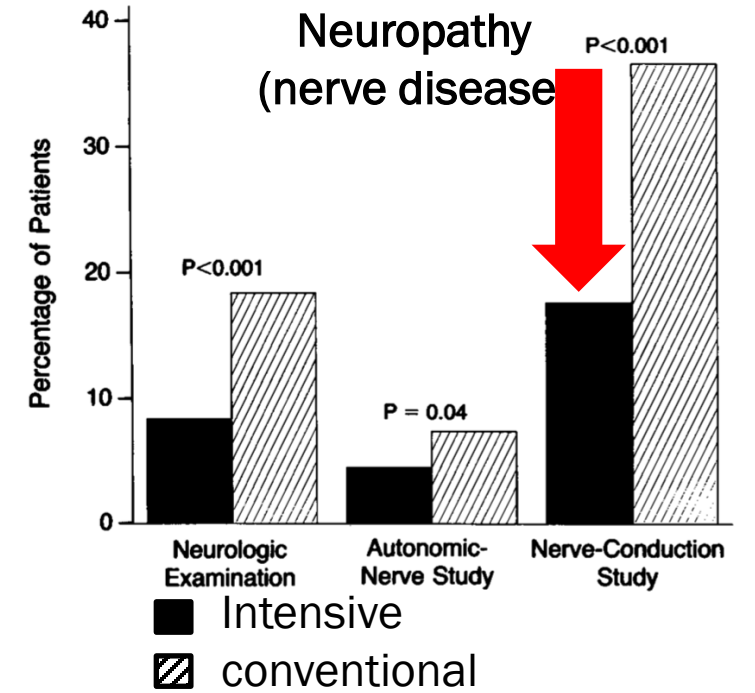
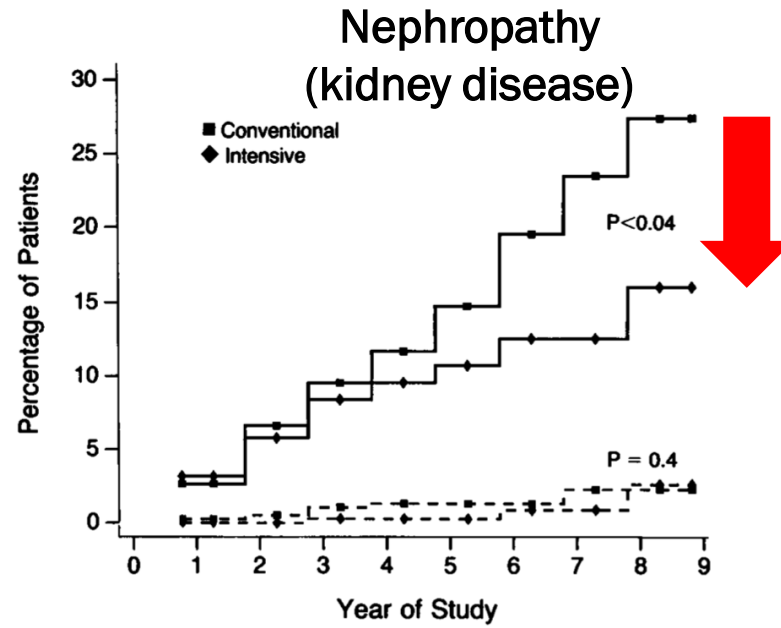
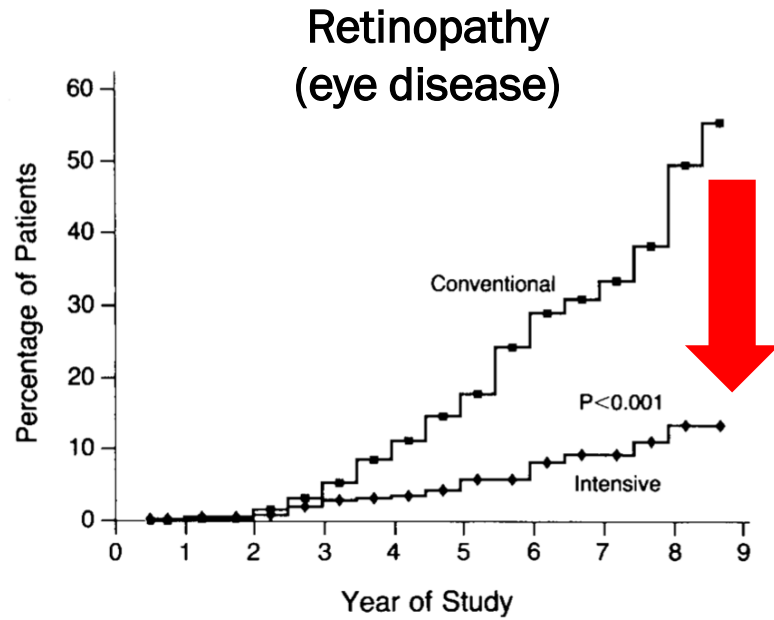


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THE FIRST EVIDENCE THAT GLUCOSE CONTROL PREVENTED COMPLICATIONS IN PEOPLE WITH DIABETES



DCCT, NEJM 1993

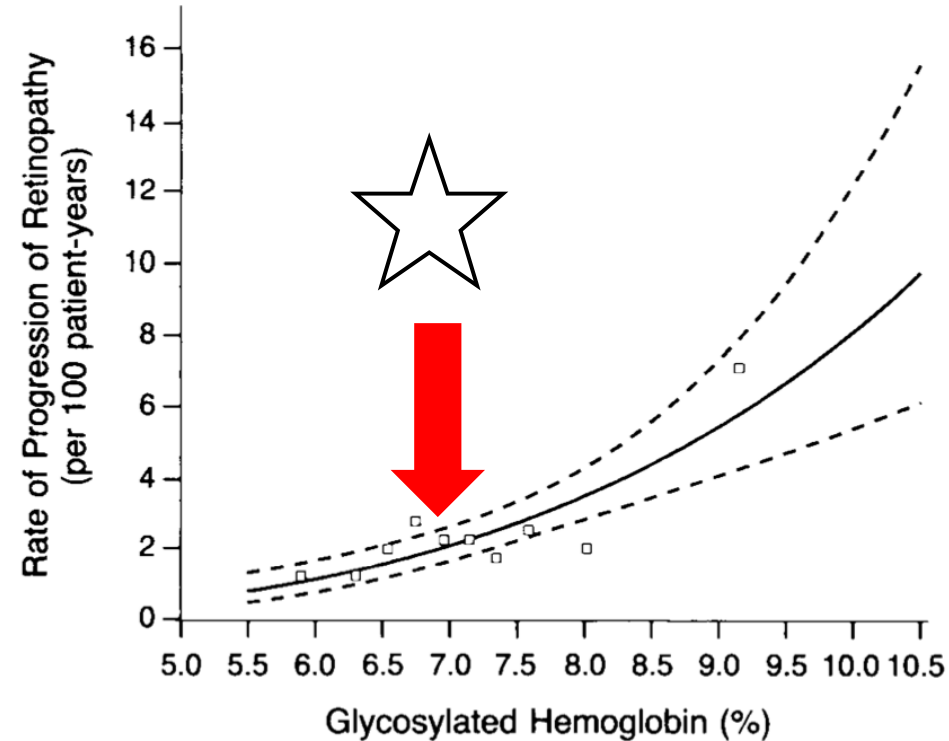


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SETTING THE GLUCOSE TARGET TO PREVENT COMPLICATIONS



DCCT, NEJM 1993



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Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33)

- The United Kingdom Prospective Diabetes Study (UKPDS) corroborated the results from the DCCT in people with type 2 diabetes.
- Benefits remained limited to preventing microvascular disease.

UKPDS, Lancet 1998



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The problem is: Two-thirds of people with diabetes die from heart disease. Doesn't glucose lowering prevent that too?



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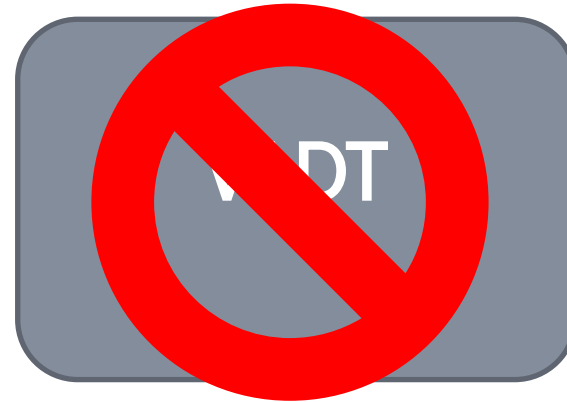
LARGE TRIALS WERE POISED TO SHOW THAT GLUCOSE LOWERING ALSO PREVENTED HEART DISEASE



ACCORD, NEJM 2008



ADVANCE, NEJM 2008



Duckworth, NEJM 2009



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PREVENTING HEART DISEASE BECAME ABOUT MULTIPLE RISK FACTOR INTERVENTION: THE ABC'S OF DIABETES



- A1c



- Blood pressure



- Cholesterol

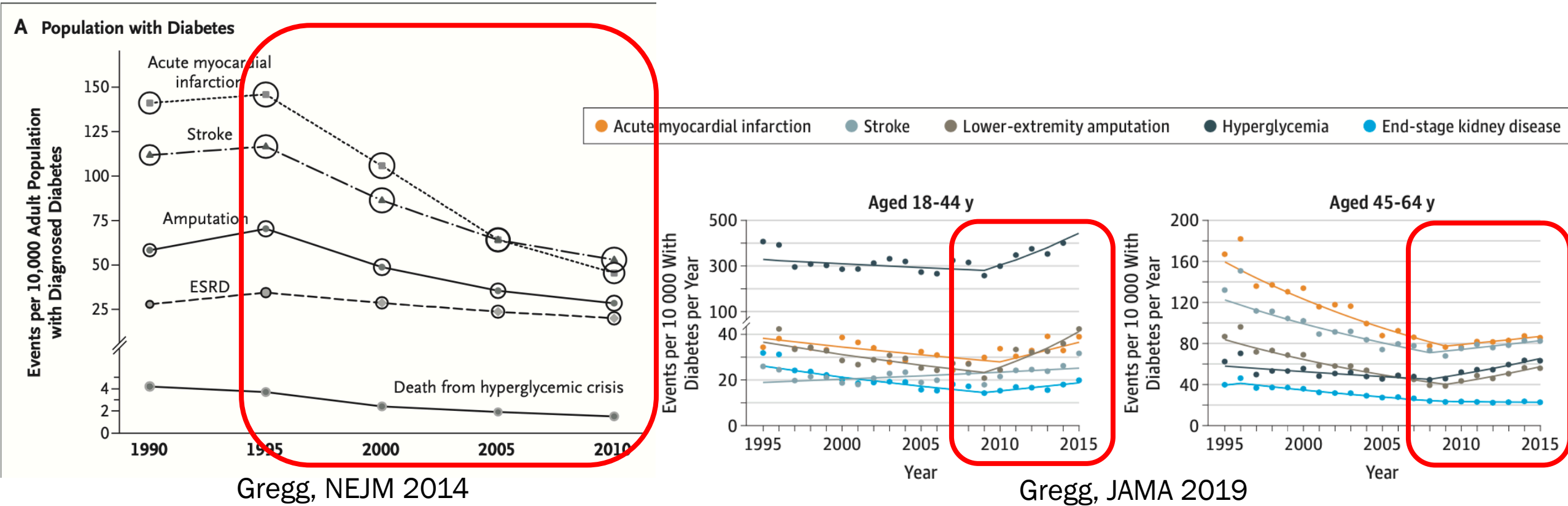


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AND THINGS GOT BETTER FOR A WHILE...



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The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Empagliflozin, Cardiovascular Outcomes, and Mortality in Type 2 Diabetes

Bernard Zinman, M.D., Christoph Wanner, M.D., John M. Lachin, Sc.D.,
David Fitchett, M.D., Erich Bluhmki, Ph.D., Stefan Hantel, Ph.D.,
Michaela Mattheus, Dipl. Biomath., Theresa Devins, Dr.P.H.,
Odd Erik Johansen, M.D., Ph.D., Hans J. Woerle, M.D., Uli C. Broedl, M.D.,
and Silvio E. Inzucchi, M.D., for the EMPA-REG OUTCOME Investigators



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SODIUM-GLUCOSE-LIKE COTRANSPORTER-2 (SGLT2) INHIBITORS PREVENT MAJOR ADVERSE CARDIOVASCULAR EVENTS

- Empagliflozin (Jardiance) in the EMPA REG OUTCOME trial
- Dapagliflozin (Farxiga) in the DECLARE trial
- Canagliflozin (Invokana) in the CANVAS trial

**BUT THEIR GREATEST BENEFITS ARE LIKELY IN PREVENTING
PROGRESSION OF KIDNEY DISEASE AND HEART FAILURE**



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GLUCAGON-LIKE PEPTIDE-1 (GLP-1) RECEPTOR AGONISTS PREVENT MAJOR ADVERSE CARDIOVASCULAR EVENTS

- Liraglutide (Victoza) in the LEADER trial
- Semaglutide (Ozempic) in the SUSTAIN-6 trial
- Dulaglutide (Trulicity) in the REWIND trial
- Albiglutide (Tanzeum) in the HARMONY trial

**AND SOME EVIDENCE SUGGESTS THEY MAY SLOW
PROGRESSION OF KIDNEY DISEASE TOO**

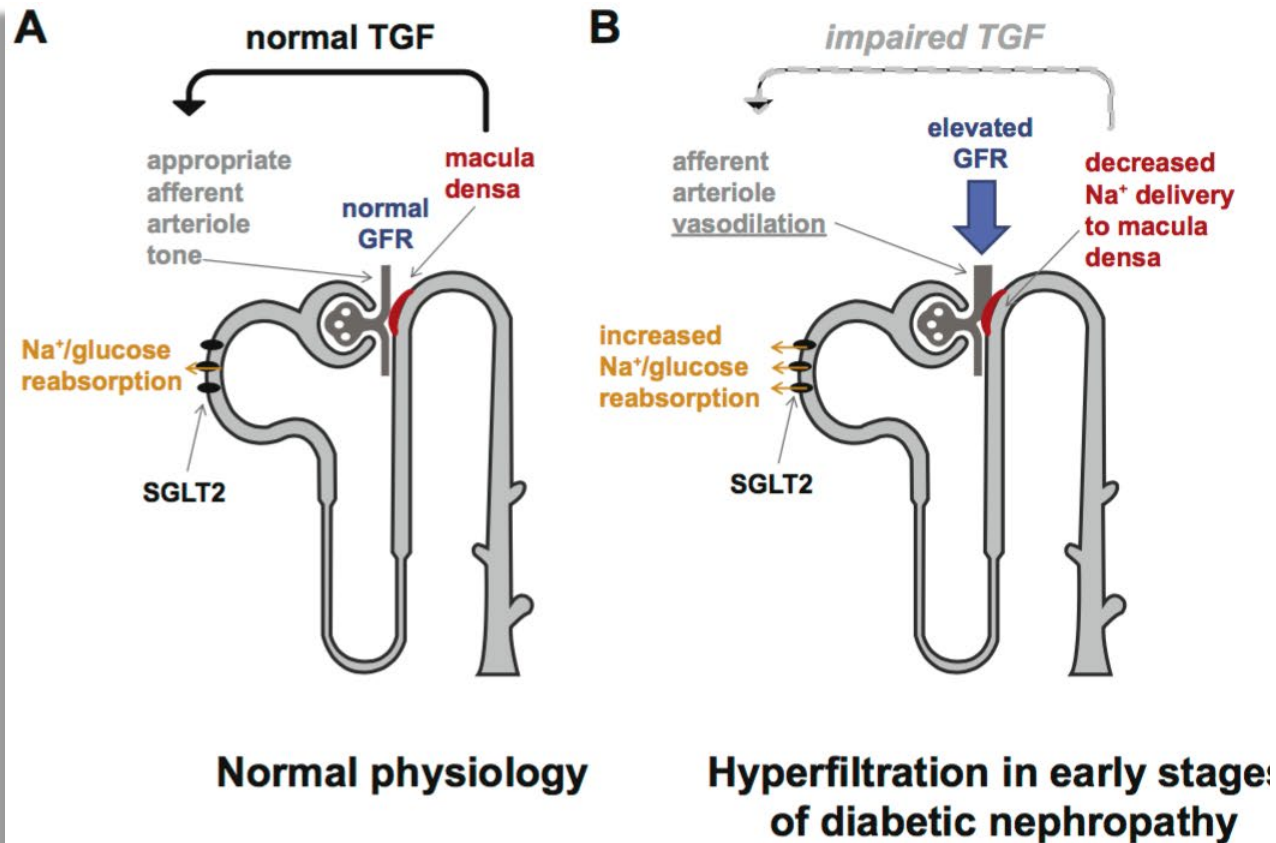


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WHAT IS GOING ON IN THE KIDNEY IN DIABETES?



When sodium stays in the blood, it takes water with it. Together that increases blood pressure.

High blood pressure damages blood vessels throughout the body, including in the heart and kidneys.

Damaged blood vessels attract immune cells to heal them, but those cells leave fat (i.e. atherosclerotic plaque) behind.

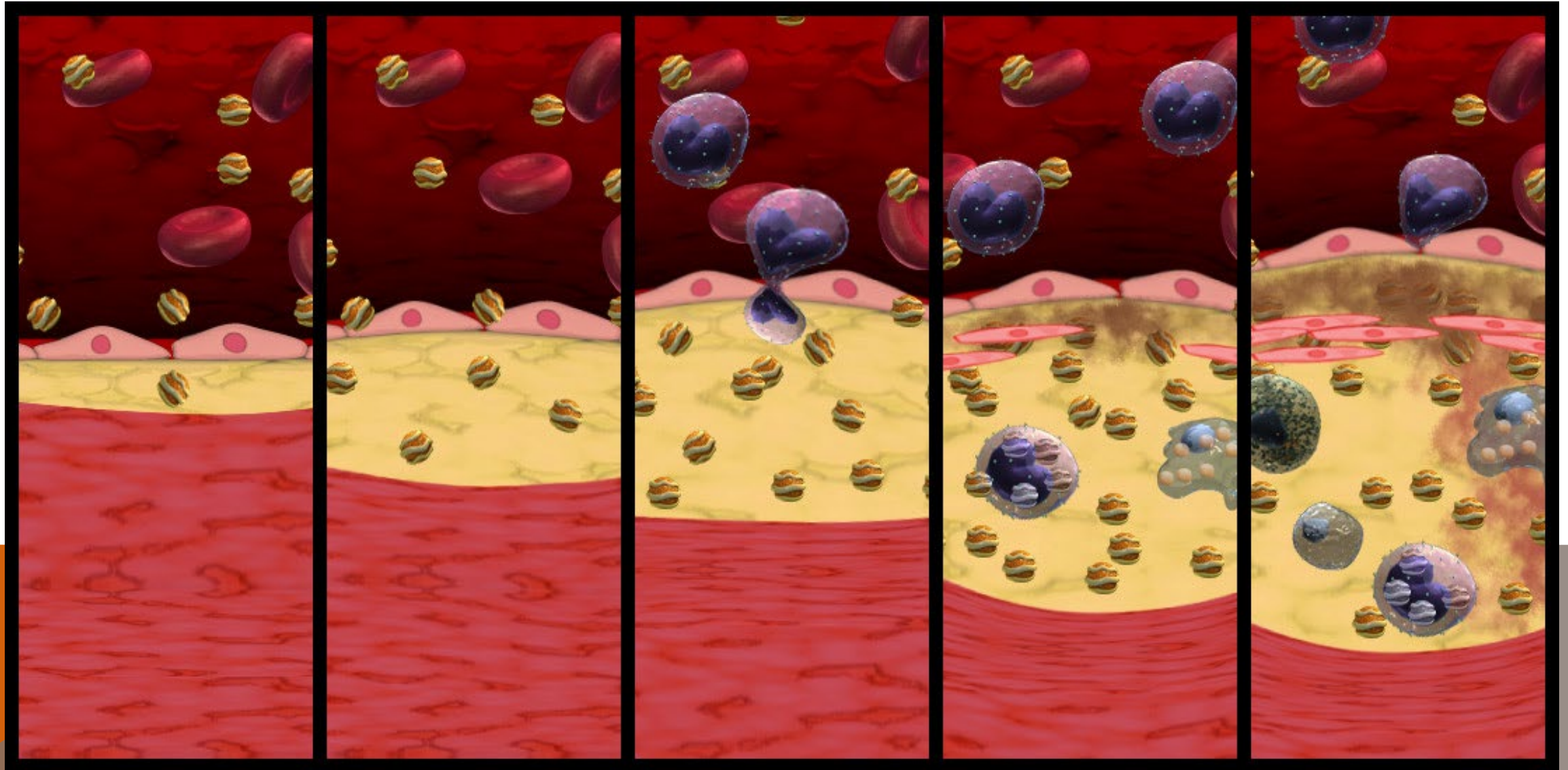


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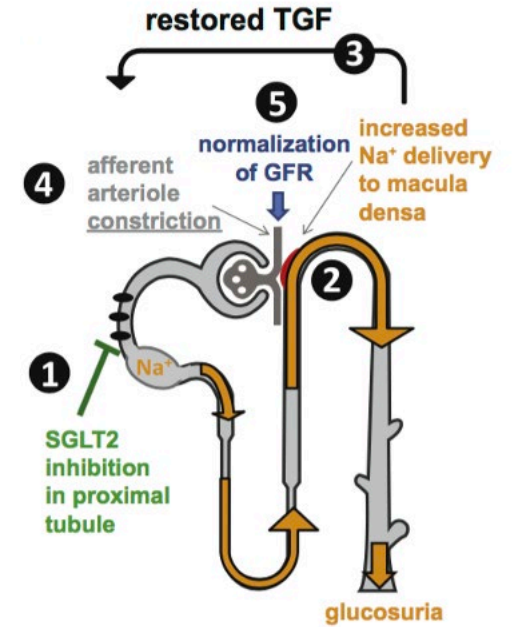
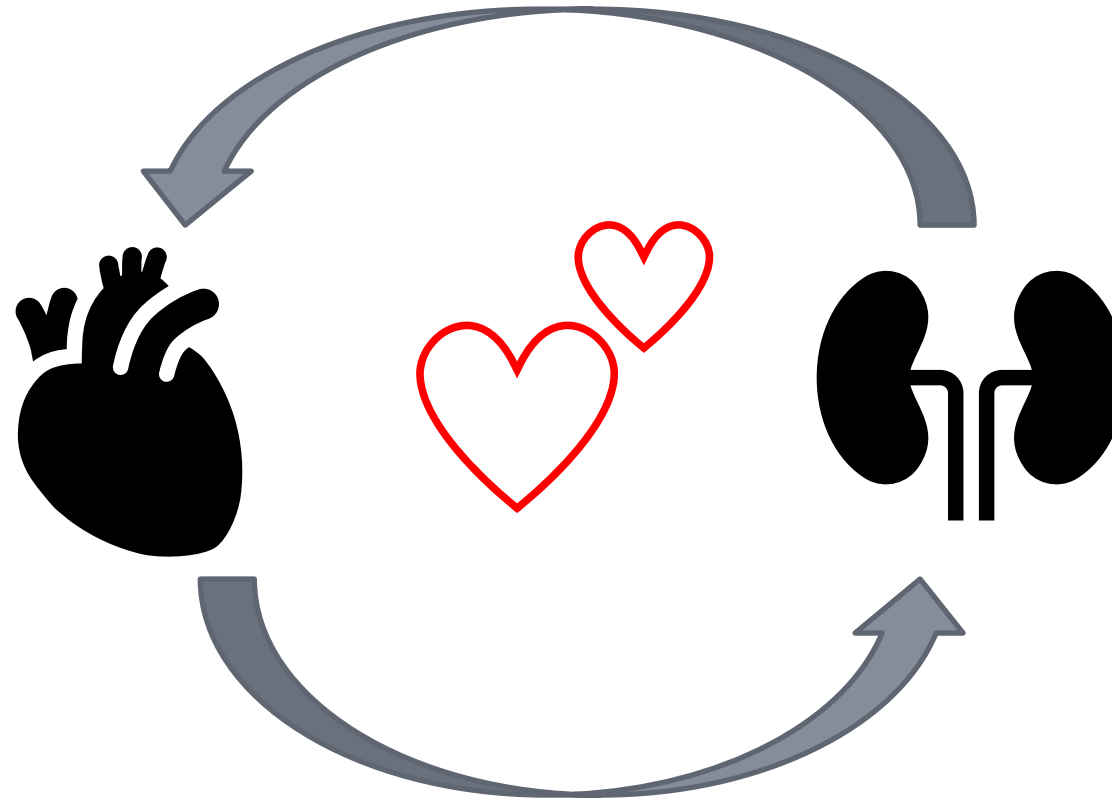


WHAT IS GOING ON IN THE HEART AND BLOOD VESSELS IN DIABETES?



HEART-KIDNEY AXIS

GLP-1 receptor agonists lower body weight and glucose, decreasing blood triglycerides and other lipids in the blood stream that lead to atherosclerotic plaque.



SGLT2 inhibitors lower blood pressure, decreasing inflammation and fibrosis in the heart, blood vessels and kidney.



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**EMBRACE THE ABC'S OF DIABETES AND NEW MEDICATIONS
TOO. PROTECT YOUR HEART AND KIDNEYS!**



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