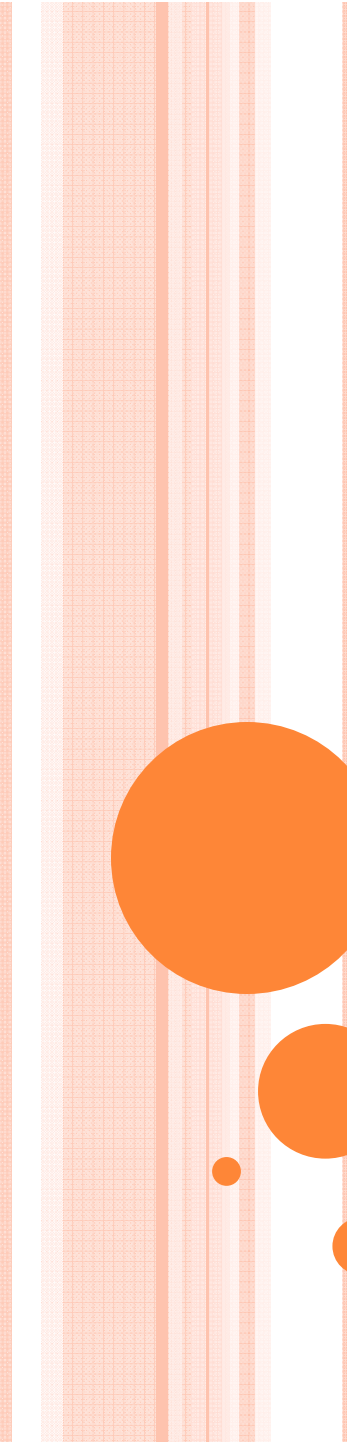




What Is Good About Resistant Starch?



Resistant Starch As An Alternative Strategy to Improve Vitamin D Status in Type 2 Diabetes

Presenter: Yi Ting Loo

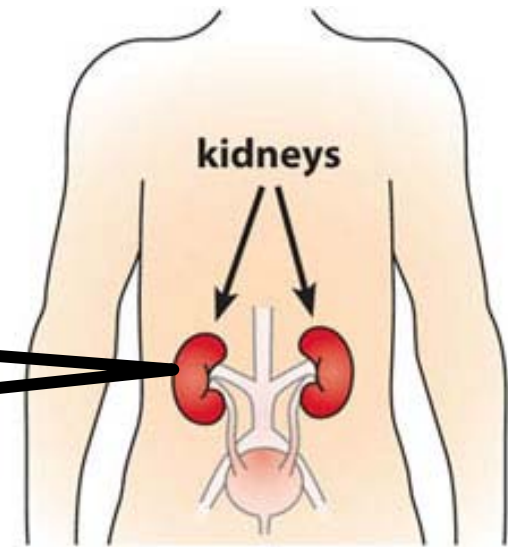
Agenda

- Type 2 Diabetes (T2D) & Vitamin D (VD)
- About Resistant Starch
- About Research Study
 - Objective
 - Methods
 - Results
 - Conclusion



Relationship Between T2D & VD

- Two forms of VD- 25D & 1,25D



- Kidney is important for VD
- Kidney disease causes low VD status
- Kidney disease is common in T2D



What Is **Resistant** Starch (RS)?

- A type of fermentable fiber
- Not digested
- Fermented in colon
- Low glycemic food

Potential for Diabetes Management



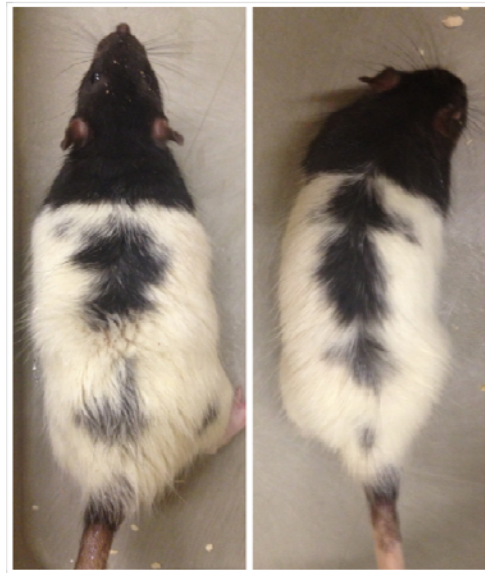
What Can **RS** Help in Diabetes?



Objective of The Study

Prevent loss of VD

Maintain serum
25 D concentrations



Zucker Diabetic Fatty Rats
(ZDF)



Diet



**Control Diet
(Cornstarch)**

**Treatment Diet
(RS)**

**Lean Control
(LC group)**
n= 8

**ZDF
(DC group)**
n= 8

**ZDF
(DRS group)**
n= 8



Sample Collections

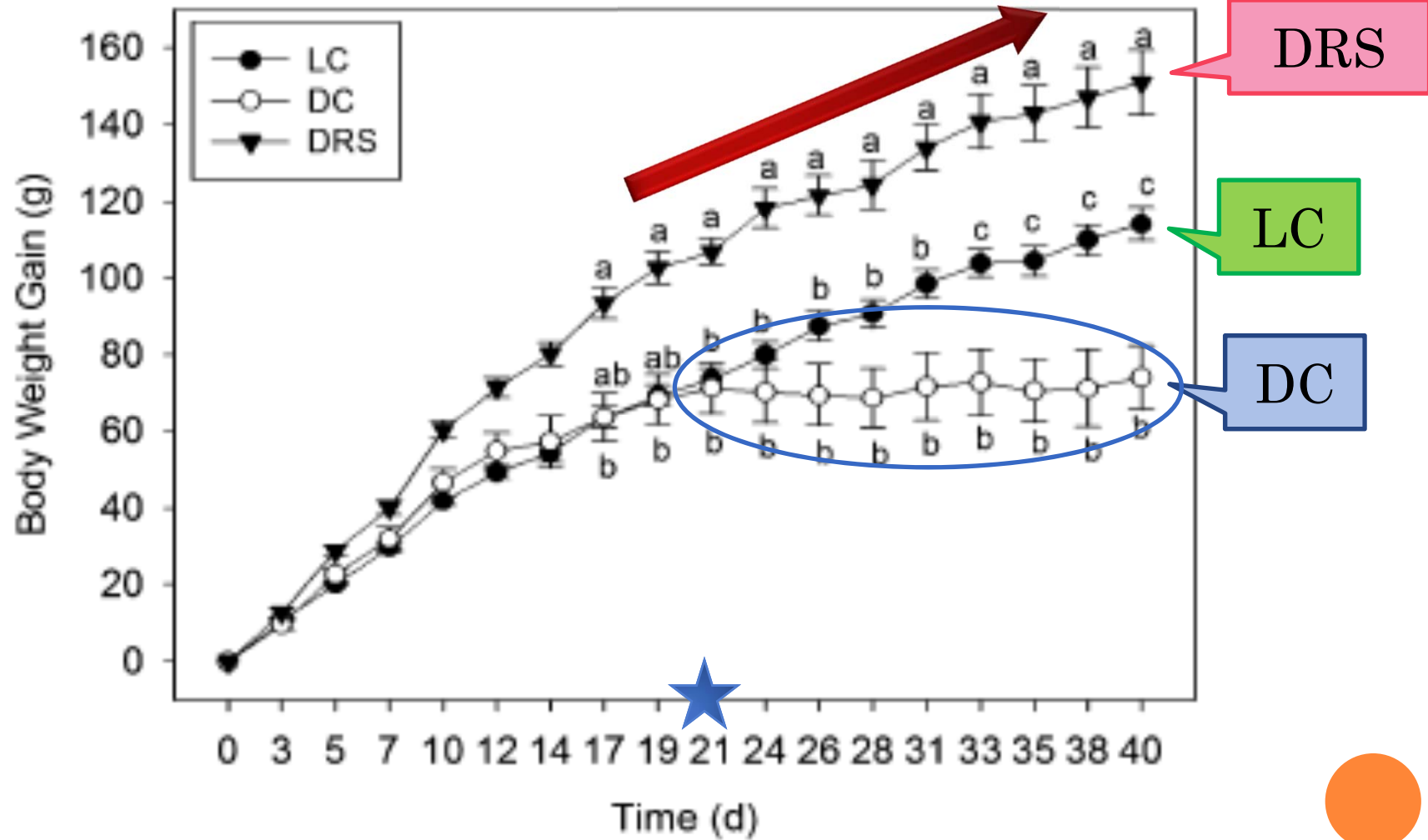
- After 6 weeks of treatment, we collected:
 - Urine
 - Blood
 - Kidney



What we found...



Body Weight



Fasting Blood Glucose

Biochemical measurements of LCs, DCs, and DRSs.¹

	LCs	DCs	DRSs
12-h Urinary volume, <i>mL</i>	5.3 ± 0.1 ^b	15.3 ± 2.4 ^a	5.4 ± 0.6 ^b
Blood glucose after food deprivation, <i>mg/dL</i>	149 ± 16.4 ^c	594 ± 53.9 ^a	351 ± 46.7 ^b
Urinary total protein, <i>mg/12 h</i>	35.2 ± 7.7 ^b	183 ± 32.7 ^a	70.0 ± 14.5 ^a
Urinary albumin, <i>mg/12 h</i>	0.1 ± 0.0 ^b	45.7 ± 16.9 ^a	3.1 ± 1.8 ^b
Urinary creatinine, <i>mg/dL</i>	169 ± 47.5 ^a	15.3 ± 4.1 ^b	107 ± 13.1 ^{ab}



594mg/dL



351mg/dL

41% lower

Indications of Kidney Damage

- Polyuria
- ↑ excretion of protein & albumin
- ↓ excretion of urinary creatinine

RS PREVENT these!



Urinary Volume, Protein, Albumin, Creatinine

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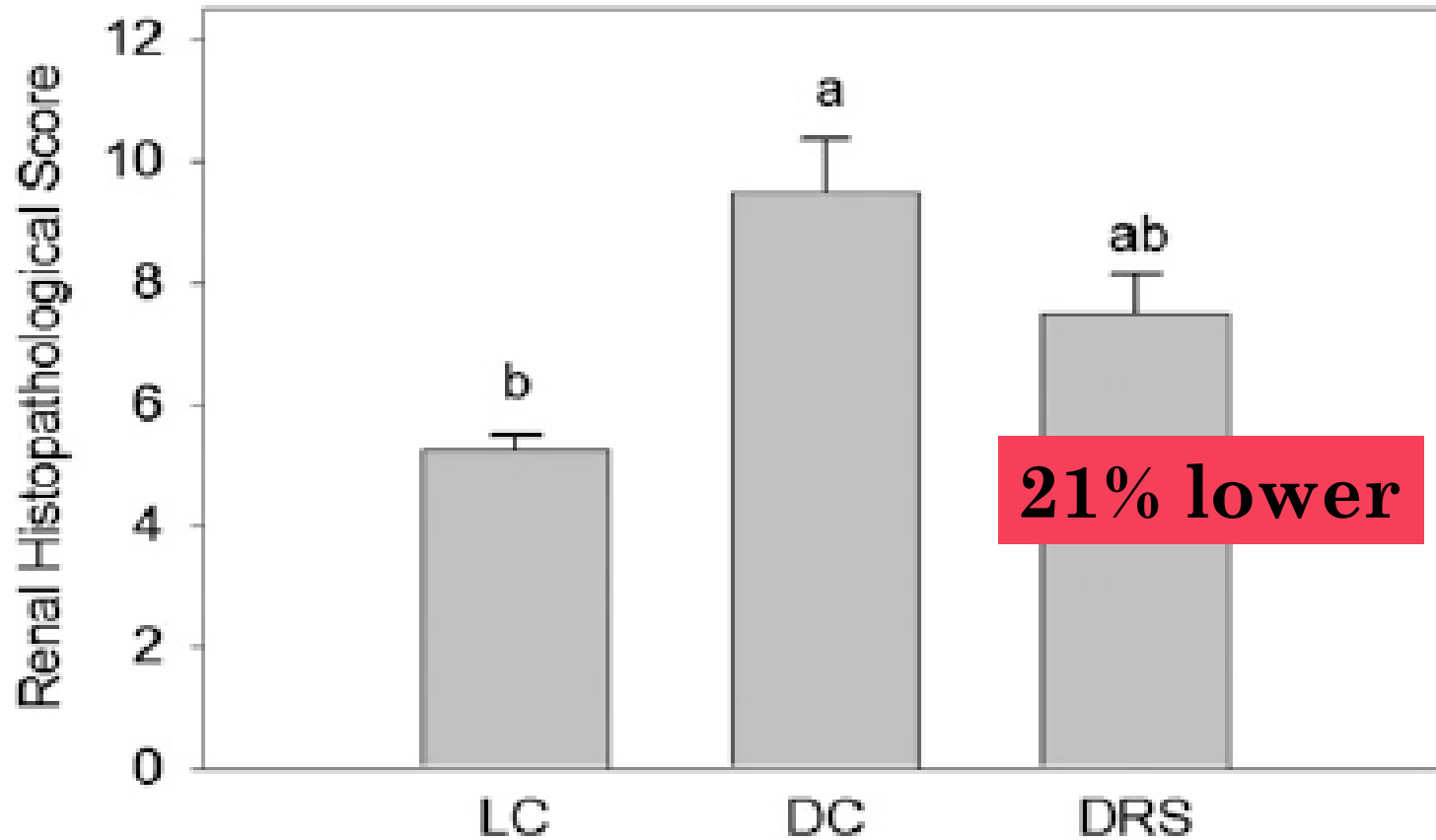


Urinary Volume, Protein, Albumin, Creatinine

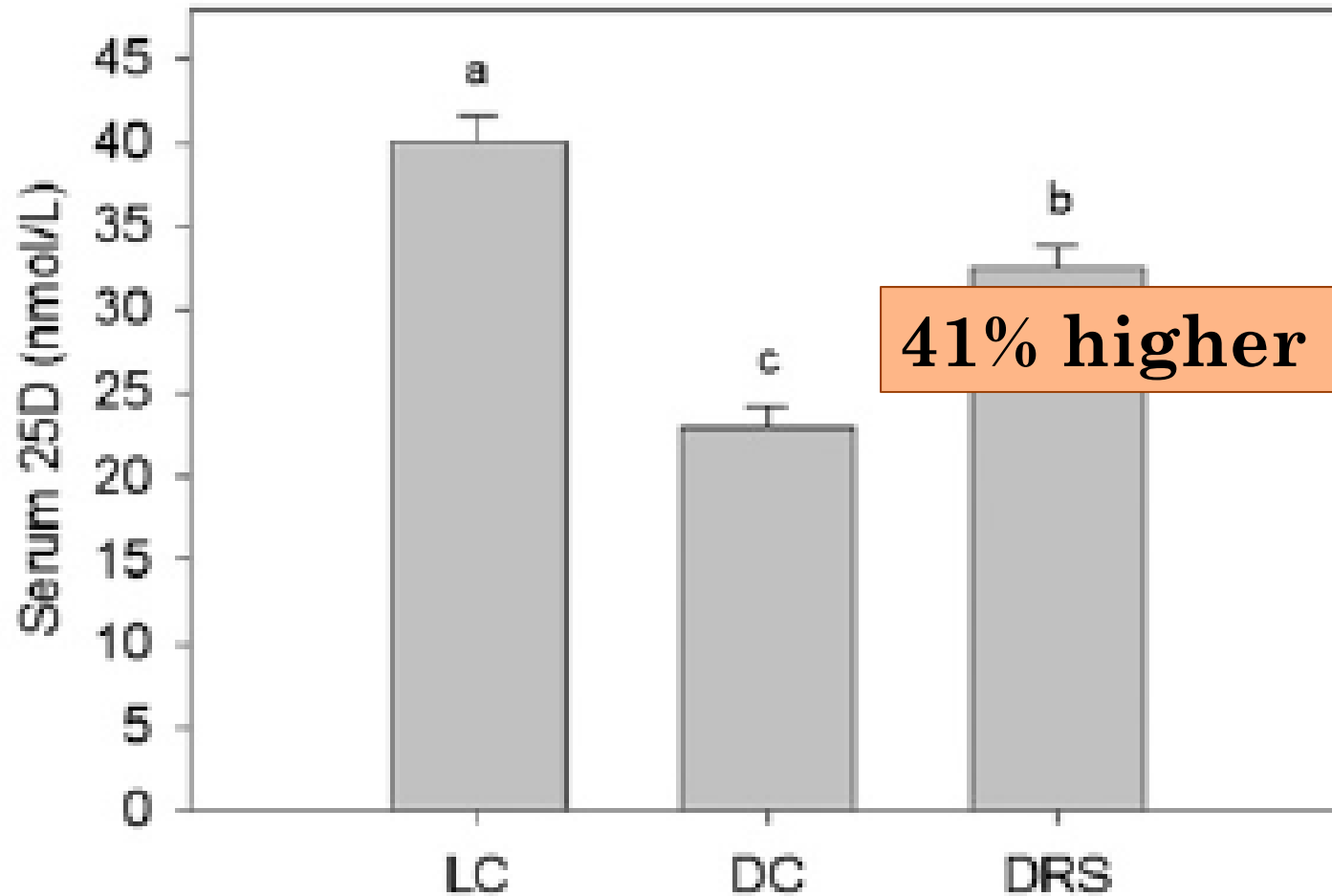
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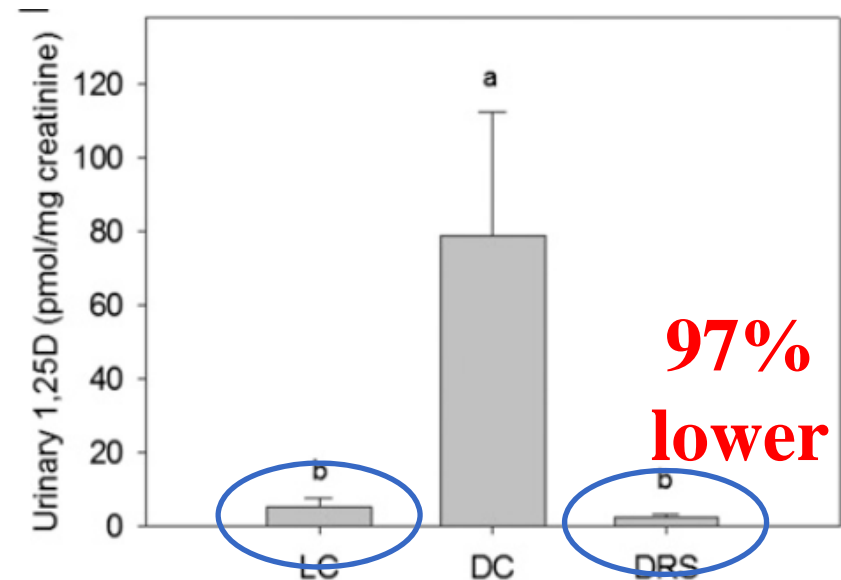
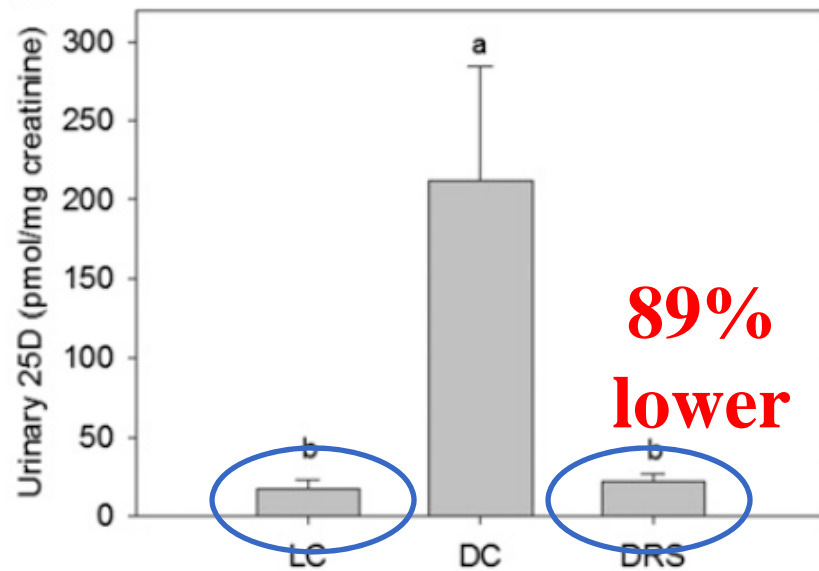
Kidney Damage



Serum 25D



Urinary Loss of 25D & 1,25D



Conclusion

RS

protect kidney health

maintains VD status in T2D



References

- Gar Yee K, Whitley E, Rowling M, et al. Dietary Resistant Starch Prevents Urinary Excretion of Vitamin D Metabolites and Maintains Circulating 25-Hydroxycholecalciferol Concentrations in Zucker Diabetic Fatty Rats. *Journal Of Nutrition* [serial online]. November 2014;144(11):1667-1673. Available from: Academic Search Premier, Ipswich, MA. Accessed February 10, 2015.



Questions?



Thank You!

