**Nutrition Intervention with Plant-Based Diet Improves Type 2 Diabetes Outcomes - A Narrative Review**

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### Evidence Synthesis and Results

#### Type 2 Diabetes Prevention

**Prospective cohort studies**30,22
- Non-diabetics at baseline
- 8 to 28 years follow up
- 30 – 75 y/o
- > 200,000 participants

- Healthy and a General PBD ->
  - Lower Incidence prediabetes and T2D
  - Lower HOMA-IR

- Unhealthy PBD -> Higher incidence of T2D

**Randomized Clinical Trials**24,25
- 75 Non-diabetics participants
- Overweight or obese
- 40 - 65 y/o
- 16-week follow up
- Low-fat PBD

- Lower FBG, insulin, c-peptide, lower, BMI, HOMA-IR, and lipid profile

- Improvements in body composition
  - Fat mass reduction
  - Related to plant-based protein quantity and quality

#### Management & Reversal of Type 2 Diabetes

**Randomized Clinical Trials**1,26-33 & Nonrandomized pilot study23
- 20 -100 T2D participants
- Overweight or obese
- 30 -79 y/o
- One meal substitution to 12-months follow up intervention
- Low-fat PBD, vegan meal, red-meat substitution with legumes

- Lower HbA1c, FBG, insulin, c-peptide, lower HOMA-IR, lipid profile, weight, BMI, waist circumference

- Improved hormone regulation of satiety with a PB meal
  - Decreased GIP and PYY.
  - Increased GLP-1 and amylin -> satiety

- Increased behavioral changes to a PBD
  - Positive impact of educational sessions

- Medication Reduction
  - Stop medication

- Improved quality of life

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**Conclusion**

- **PBD improves T2D Outcomes**
  - Healthy PBD decreases risk of T2D
  - Healthy PBD improves health outcomes by lowering HbA1c, FBG, insulin, lower HOMA-IR, lipid profile, weight, BMI, waist circumference

- **Further Research**
  - Younger populations → rising incidence of T2D in < 20 y/o

**Healthcare Impact**

- **Multidisciplinary approach cornerstone for prevention and management**
- **RDN’s key role -> qualified health professional**
- **Develop evidence-based guidelines, policies, and recommendations**

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**Background & Purpose**

**Type 2 Diabetes**
- Top leading cause of death
- Key contributors

**Diabetes Management**
- Multidisciplinary Approach
- Medication and lifestyle intervention
- Diet key factor

**Plant-based Diet**
- Increased popularity
- Increased research
- Nutrient dense
- Multiple health benefits

**Purpose:** Address the lack of a dietetic-focused narrative review analyzing best evidence on the effect of a plant-based eating pattern on the outcomes of type 2 diabetes (T2D).

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**Search Methods**

- **Database identified articles** (PubMed, Google Scholar, Ovid Medline and CINAHL) n=537
- Non-database manually identified articles n=4
- Published ≥5 years: n= 173
- Non-clinical studies: n= 337
- Excluded: Animal studies n=1 <19y/o: n=5
  - Focus on other disease or conditions: n=4
- Participants: T2D n=337

**Included Articles**
- n=31
- n=14

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**Excluded articles:**
- Nonclinical studies: n=337
- Randomized pilot study: n=4
- Excluded: Animal studies n=1 <19y/o: n=5
- Does not meet plant-based diet criteria: n=3
- Focus on other disease or conditions: n=4
- Other focus: n=4

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**Evidence Synthesis and Results**

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**Strengths**

- Quality and type of studies
- Follow up large cohort studies
- Hormone signaling with a PBD

**Limitations**

- Age range
- Using diabetes as a search term
- Limited research on reversal of T2D

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**Conclusion**

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References