Systematic review of the evidence for a liberalised diet in the management of diabetes mellitus in older adults residing in aged care facilities

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Background

- Clinical and functional presentation of older adults with diabetes in aged care is diverse and the prevalence of diabetes in residential aged care facilities (RACF) is twice that of the general population.¹
- There are no nationally endorsed menu guidelines for aged care and dietary management of older adults with diabetes can vary widely in practice.
- Historically dietitians prescribed prescriptive low sugar diets for diabetes management e.g. ‘ADA diet’, but concern has been raised that this style of restrictive diet may be contributing to malnutrition.²
- National and international recommendations promote a more liberal diet now including added sugar but "hyperglycaemia leading to symptoms or risk of acute hyperglycaemic complications should be avoided”² in this instance ‘excessive’ use of sugar containing foods and drinks would ideally be limited.
- Variations of a therapeutic ‘diabetic’ diet are still in use in some Australian RACF in the absence of clear guidelines on how to implement a liberalised diet.
- The aim of this literature review was to evaluate the evidence supporting a liberalised diet for the management of diabetes mellitus in residential aged care facilities¹ and to evaluate the effect of this diet on glycaemia, nutritional status and diabetes comorbidity risk factors.

Methods

- 3 step search of key words (Figure 1) then key words and MESH headings across 8 databases including Pubmed, CINAHL, Medline, Cochrane, Informit, Web of Science, Scopus and Ageline and finally hand searching of reference lists.
- The inclusion criteria had no restrictions on date or language but studies needed to be in an aged care setting and include:
  - Outcomes for glycaemia (BGL’s [mmol/L], HbA1c [%])
  - Outcomes for nutrition status (BMI [kg/m²], Weight [kg], Albumin [g/L])
  - Outcomes for comorbidities (Total cholesterol [mmol/L])
- Quality assessment of papers using Jadad³ scoring 0-5 (5 being highest quality based on attrition, blinding and cohort selection).

Results

- Of 546 papers identified in the search only 6 papers were suitable for critical analysis.
- 5/6 studies compared effects of a liberalised diet on glycaemia.

Table 1 – Overview of studies included in the literature review

<table>
<thead>
<tr>
<th>Authors</th>
<th>Study Design</th>
<th>Sample</th>
<th>Outcomes as Measured:</th>
<th>Results Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goldberg R. et al (2001)</td>
<td>Randomised controlled trial, 12-week liberalised diet compared to residents current ‘no sweets’ diet, follow up over 12 weeks</td>
<td>34 RACF residents with type 2 diabetes usually receiving a therapeutic diet</td>
<td>Baseline HbA1c and Fasting BGL’s, 1 Albunin at baseline</td>
<td>Liberalised diet did not significantly affect glycaemia or nutritional status.</td>
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<tr>
<td>Coulston A. et al (2010)</td>
<td>Non-randomised controlled trial, therapeutic diet liberalised for 6 weeks, follow up over 16 weeks</td>
<td>18 T2DM RACF residents usually receiving therapeutic diets</td>
<td>Fasting BGL’s, BMI, Triglyceride, Cholesterol</td>
<td>Liberalised diet increased calorie intake with modest effect on diabetes management but authors argue that there is more positive gain to patient not to be restricted</td>
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<tr>
<td>Taris S. et al. (2001)</td>
<td>Non-randomised controlled trial, therapeutic diet liberalised for 6 weeks, follow up over 6 months</td>
<td>28 RACF residents with T2DA, non acute issues and able to self-feed usually receiving therapeutic diets</td>
<td>Baseline, 3 months and 6 month HbA1c, BMI, weight, &amp; Baseline, BMI &amp; fasting BGL’s</td>
<td>No significant changes in glycaemia or nutritional status. Study shows that a liberalised diet including sucrose containing foods should be recommended.</td>
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<td>Cazanove C et al (2001)</td>
<td>1 day cross sectional survey of residents provided a therapeutic diet (n=48) vs elderly care facility as compared to those receiving a liberalised diet (n=32)</td>
<td>48+ older adults residing in RACF, with non-complicated type 2 diabetes</td>
<td>Glycaemic control, Weight BMI, Total cholesterol</td>
<td>Residents on a therapeutic diet demonstrated better glycaemic management independent of age and physical ability and were happy with food choices. Therapeutic diet did not affect appetite, intake or malnutrition risk and may support better diabetes management.</td>
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<tr>
<td>Rouxel R. et al (2010)</td>
<td>Retrospective cross sectional study of residents receiving a therapeutic diet (n=100) compared with a liberalised diet (n=60). Data collected on 1 occasion</td>
<td>100 participants with diabetes aged 50-84 years old usually receiving therapeutic diet across 7 institutions</td>
<td>HbA1c BMI, Total cholesterol, Triglycerides</td>
<td>Study shows no significant change in glycaemia, nutritional status or risk factors between diets.</td>
</tr>
<tr>
<td>Cooper L. et al (2010)</td>
<td>1 day Retrospective observation study of aged care residents with diabetes</td>
<td>41 Residents of aged care facility &gt;60 months with type 2 diabetes</td>
<td>Fasting BGL’s, BMI, Albumin</td>
<td>Nil Those residents receiving a therapeutic diet and also overweight were deemed non-compliant with diet as no significant changes in weight. Overall mortality was similar between groups but hospitalisations were more frequent in those with diabetes.</td>
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</table>

Key Findings

- No significant changes, negative or positive, to primary outcomes with change in diet.
- Limitations with all studies included:
  - Small sample sizes,
  - Short duration < 12 weeks,
  - Healthy cohorts with optimal diabetes management
  - No controlling for confounders such as medication changes
- ‘Diabetic’ diets used for comparison are unlikely to represent current therapeutic diets.
- Poor Jadad scores of 0 or 1 for all studies.
- Despite this majority consensus was that a liberalised diet does not impact diabetes management and may reduce malnutrition risk.

References


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Figure 1 – Key word search for literature review