Spirit Food

An Overview of the Decolonizing Diet Project

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Goals of the DDP

- The Decolonizing Diet Project (DDP) (approved by IRB: project # HS11-415) is an exploratory multi-dimensional study of the relationships between people and Indigenous foods of the Great Lakes Region.
- It was intended to connect, or reconnect, humans with foods that are Indigenous to the Great Lakes Region and that were part of Indigenous peoples diets prior to colonization, and to provide food-related data for tribal communities and others that are working toward the revitalization of Indigenous cultures.
Where and when did the DDP take place?

<table>
<thead>
<tr>
<th>Research and Planning Phase</th>
<th>Implementation Phase</th>
<th>Analysis/Reporting Phase</th>
</tr>
</thead>
</table>
Who was involved in the project?

• 25 diverse voluntary research subjects
• Staff
• Volunteers
• Advisors
• NMU Community
• GLR Community
• Others
Individual Commitment to the DDP

• Between 25%-100% of their daily diet consisted of Indigenous foods from the GLR
• Adhered to an exercise regimen based on pre-colonial physical activities or their equivalents
• Ate and exercised according to this plan for one year
• Used multiple forms of media to record their experiences including a written journal, photos, and video/audio
• Got regularly scheduled health checks
How did people know what to eat?

- Master list of DDP eligible foods identifies many species of plants, mammals, birds, fish, fungi, and insects.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Nelumbo lutea</em></td>
<td>American Lotus</td>
<td><em>Parthenocissus quinquefolia</em> (L.) Planch</td>
</tr>
<tr>
<td><em>Nemophila mucronata</em> L.</td>
<td>Catberry</td>
<td><em>Pedicularis canadensis</em> L.</td>
</tr>
<tr>
<td><em>Nymphaea odorata</em> Ait.</td>
<td>American White Waterlily</td>
<td><em>Phaseolus lunatus</em></td>
</tr>
<tr>
<td><em>Osmunda regalis</em></td>
<td>Royal Fern</td>
<td><em>Phaseolus polystachios</em> (polystachyus)</td>
</tr>
<tr>
<td><em>Oxalis montana</em> Raf.</td>
<td>Mountain Woodsorrel</td>
<td><em>Phaseolus vulgaris</em> (var. vulgaris and subsp. aborigineus)</td>
</tr>
<tr>
<td><em>Parmelia physodes</em> Ack.</td>
<td>Lichen</td>
<td><em>Photinia melanocarpa</em> (Michx.)</td>
</tr>
<tr>
<td><em>Parthenocissus quinquefolia</em> (L.) Planch</td>
<td><em>Virginia Creeper</em></td>
<td><em>Phytolacca americana</em></td>
</tr>
<tr>
<td><em>Peziza villosa</em></td>
<td><em>Thicket Bean, Genuine Cornfield Bean</em></td>
<td><em>Picea glauca</em></td>
</tr>
<tr>
<td><em>Picea mariana</em></td>
<td><em>Canadian Lousewort, Wood Betany</em></td>
<td><em>Picea mariana</em></td>
</tr>
<tr>
<td><em>Pinus strobus</em> L.</td>
<td><em>Eye Bean, Black Bean</em></td>
<td><em>Pinus strobus</em> L.</td>
</tr>
<tr>
<td><em>Podophyllum peltatum</em></td>
<td><em>Black Chokecherry</em></td>
<td><em>Phytolacca americana</em></td>
</tr>
<tr>
<td><em>Polygonum achoreum</em> S.F. Blake</td>
<td><em>American Pokeweed</em></td>
<td><em>Picea glauca</em></td>
</tr>
<tr>
<td><em>Polygonum amphibium</em> L.</td>
<td><em>White Spruce</em></td>
<td><em>Picea mariana</em></td>
</tr>
<tr>
<td><em>Polygonum arifolium</em> L.</td>
<td><em>Black Spruce</em></td>
<td><em>Pinus strobus</em> L.</td>
</tr>
<tr>
<td><em>Polygonum biforme</em> Small</td>
<td><em>Eastern White Pine</em></td>
<td><em>Podophyllum peltatum</em></td>
</tr>
<tr>
<td><em>Polygonum careyi</em> Olney</td>
<td><em>Mayapple</em></td>
<td><em>Polygonum achoreum</em> S.F. Blake</td>
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<tr>
<td><em>Polygonum douglasii</em> Greene</td>
<td><em>Leathery Knotweed</em></td>
<td><em>Polygonum amphibium</em> L.</td>
</tr>
<tr>
<td><em>Podophyllum peltatum</em></td>
<td><em>Water Knotweed</em></td>
<td><em>Polygonum arifolium</em> L.</td>
</tr>
<tr>
<td><em>Polygonum biforme</em> Small</td>
<td><em>Halberdleaf Tearthumb</em></td>
<td><em>Polygonum careyi</em> Olney</td>
</tr>
<tr>
<td><em>Polygonum douglasii</em> Greene</td>
<td><em>Box Knotweed</em></td>
<td><em>Polygonum douglasii</em> Greene</td>
</tr>
<tr>
<td>Descriptor</td>
<td>Native Pre-Colonial (NPreC)</td>
<td>Introduced Pre-Colonial (IPreC)</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td><strong>Explanation</strong></td>
<td>These foods were not introduced by humans, deliberately or accidentally, into the Great Lakes Region (GLR), and they existed in the GLR prior to European colonization of the Region.</td>
<td>These foods were introduced by humans, deliberately or accidentally, into the GLR, and they existed in the GLR prior to European colonization of the Region.</td>
</tr>
<tr>
<td><strong>Included in DDP?</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
How did people find their food?

• DDP research subjects employed multiple methods of accessing Indigenous foods including:
  – Hunting
  – Fishing
  – Gathering/Foraging
  – Gardening
  – Purchasing
  – Trading
  – Sharing
  – Other
How did people know how to prepare the foods?

- Cooking Demos
- Potlucks
- Online Journals
- Recipe Forum
Outcomes

Diagram:

- Biological
- Cultural
- Legal/Political
- DDP

The diagram illustrates the interconnections between biological, cultural, and legal/political factors, highlighting the area labeled DDP where these domains overlap.
Some Common Foods

- Wild rice
- Corn
- Maple
- Sunflower
- Pumpkin
- Squash
- Berries
- Wild Leeks
- Beans
- Sweet potatoes
- Pecans
- Turkey
- Sunchokes
- Venison
- Bison
- Fish
Some Uncommon Foods

- Beaver
- Grasshopper
- White Pine Bark
- Crab Apple
- Squirrel
- Porcupine
<table>
<thead>
<tr>
<th>Food</th>
<th>Frequency</th>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
<th>Snack</th>
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<tbody>
<tr>
<td>Bison</td>
<td>74</td>
<td>8</td>
<td>27</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Blueberries</td>
<td>67</td>
<td>28</td>
<td>10</td>
<td>11</td>
<td>18</td>
</tr>
<tr>
<td>Corn</td>
<td>224</td>
<td>60</td>
<td>61</td>
<td>67</td>
<td>36</td>
</tr>
<tr>
<td>Duck Eggs</td>
<td>153</td>
<td>61</td>
<td>31</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>Green Beans</td>
<td>50</td>
<td>2</td>
<td>20</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Leeks</td>
<td>154</td>
<td>9</td>
<td>60</td>
<td>71</td>
<td>14</td>
</tr>
<tr>
<td>Maple</td>
<td>393</td>
<td>157</td>
<td>79</td>
<td>83</td>
<td>74</td>
</tr>
<tr>
<td>Pecans</td>
<td>52</td>
<td>9</td>
<td>7</td>
<td>3</td>
<td>34</td>
</tr>
<tr>
<td>Pumpkin Seed Flour</td>
<td>98</td>
<td>37</td>
<td>27</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Sea Salt</td>
<td>237</td>
<td>52</td>
<td>64</td>
<td>60</td>
<td>51</td>
</tr>
<tr>
<td>Sweet Fern</td>
<td>58</td>
<td>3</td>
<td>23</td>
<td>34</td>
<td>3</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>51</td>
<td>3</td>
<td>21</td>
<td>25</td>
<td>2</td>
</tr>
<tr>
<td>Turkey</td>
<td>81</td>
<td>6</td>
<td>35</td>
<td>36</td>
<td>3</td>
</tr>
<tr>
<td>Wild Rice</td>
<td>223</td>
<td>64</td>
<td>69</td>
<td>51</td>
<td>39</td>
</tr>
</tbody>
</table>
Biological Outcomes

• Based on a statistical analysis of group data, we are able to report that research subjects experienced significant:
  – Reductions in weight
  – Reductions in girth
  – Reductions in BMI

• Individuals also experienced noteworthy or significant:
  – Reductions in blood pressure
  – Reductions in cholesterol
  – Reductions in blood glucose levels
## Aggregate Data

<table>
<thead>
<tr>
<th>Metric</th>
<th>n</th>
<th>Baseline</th>
<th>End</th>
<th>Diet Avg.</th>
<th>Change Base - End</th>
<th>t</th>
<th>P</th>
<th>Change Base - Average</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic BP¹</td>
<td>4</td>
<td>122.0 ± 9.9</td>
<td>120.5 ± 23.7</td>
<td>117.8 ± 12.7</td>
<td>-1.5 ± 12.7</td>
<td>0.311</td>
<td>0.388</td>
<td>-4.3 ± 13.1</td>
<td>0.648</td>
<td>0.281</td>
</tr>
<tr>
<td>Diastolic BP¹</td>
<td>4</td>
<td>77.5 ± 3.0</td>
<td>71.0 ± 9.6</td>
<td>70.7 ± 4.0</td>
<td>-6.5 ± 9.3</td>
<td>1.399</td>
<td>0.128</td>
<td>-6.8 ± 5.1</td>
<td>2.691</td>
<td>0.037*</td>
</tr>
<tr>
<td>Weight²</td>
<td>6</td>
<td>164.7 ± 29.0</td>
<td>151.0 ± 25.6</td>
<td>151.5 ± 26.0</td>
<td>-13.7 ± 11.0</td>
<td>3.067</td>
<td>0.014*</td>
<td>-13.2 ± 9.9</td>
<td>3.802</td>
<td>0.011*</td>
</tr>
<tr>
<td>BMI²</td>
<td>7</td>
<td>28.1 ± 3.2</td>
<td>25.8 ± 3.1</td>
<td>26.3 ± 2.8</td>
<td>-1.8 ± 1.8</td>
<td>2.803</td>
<td>0.016*</td>
<td>-2.3 ± 2.2</td>
<td>2.671</td>
<td>0.018*</td>
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<tr>
<td>Waist¹</td>
<td>4</td>
<td>99.3 ± 2.1</td>
<td>92.0 ± 4.7</td>
<td>93.4 ± 4.3</td>
<td>-7.3 ± 4.6</td>
<td>3.170</td>
<td>0.025*</td>
<td>-5.9 ± 2.3</td>
<td>5.123</td>
<td>0.007*</td>
</tr>
<tr>
<td>Hip³</td>
<td>4</td>
<td>113.5 ± 10.3</td>
<td>101.3 ± 4.8</td>
<td>104.4 ± 7.0</td>
<td>-12.2 ± 9.8</td>
<td>2.485</td>
<td>0.044*</td>
<td>-9.1 ± 4.5</td>
<td>3.502</td>
<td>0.020*</td>
</tr>
<tr>
<td>Cholesterol¹</td>
<td>8</td>
<td>193.8 ± 23.5</td>
<td>188.6 ± 13.3</td>
<td>183.8 ± 15.2</td>
<td>-5.1 ± 13.3</td>
<td>0.635</td>
<td>0.276</td>
<td>-9.6 ± 20.1</td>
<td>1.34</td>
<td>0.111</td>
</tr>
<tr>
<td>LDL¹</td>
<td>6</td>
<td>112.7 ± 26.8</td>
<td>101.1 ± 7.7</td>
<td>104.9 ± 7.8</td>
<td>-11.6 ± 26.2</td>
<td>1.167</td>
<td>0.144</td>
<td>-7.8 ± 22.2</td>
<td>0.932</td>
<td>0.193</td>
</tr>
<tr>
<td>HDL³</td>
<td>8</td>
<td>59.9 ± 13.0</td>
<td>61.1 ± 14.2</td>
<td>60.3 ± 12.1</td>
<td>+1.3 ± 7.8</td>
<td>-0.455</td>
<td>0.331</td>
<td>+0.4 ± 4.1</td>
<td>-0.279</td>
<td>0.394</td>
</tr>
<tr>
<td>Triglyceride¹</td>
<td>6</td>
<td>141.7 ± 95.7</td>
<td>114.8 ± 70.8</td>
<td>102.0 ± 48.2</td>
<td>-26.8 ± 60.5</td>
<td>1.086</td>
<td>0.164</td>
<td>-39.7 ± 69.1</td>
<td>1.405</td>
<td>0.109</td>
</tr>
<tr>
<td>Glucose¹</td>
<td>5</td>
<td>92.4 ± 13.2</td>
<td>91.8 ± 8.1</td>
<td>91.5 ± 6.0</td>
<td>-0.6 ± 10.6</td>
<td>0.127</td>
<td>0.453</td>
<td>-0.9 ± 8.4</td>
<td>0.242</td>
<td>0.410</td>
</tr>
</tbody>
</table>
# Case Study 1: Dr. Martin Reinhardt
## 100 Percent Commitment Level

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Baseline</th>
<th>Interval Average</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Systolic Blood Pressure</strong></td>
<td>124 mm/Hg</td>
<td>111.5 mm/Hg</td>
<td>-12.5 mm/Hg</td>
</tr>
<tr>
<td><strong>Diastolic Blood Pressure</strong></td>
<td>80 mm/Hg</td>
<td>68.8 mm/Hg</td>
<td>-11.3 mm/Hg</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>186.5 lbs</td>
<td>160 lbs</td>
<td>-26.5 lbs</td>
</tr>
<tr>
<td><strong>BMI</strong></td>
<td>29.2</td>
<td>25.5</td>
<td>-3.8</td>
</tr>
<tr>
<td><strong>Waist</strong></td>
<td>97 cm</td>
<td>88.9 cm</td>
<td>-8.1 cm</td>
</tr>
<tr>
<td><strong>Hip</strong></td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Cholesterol</strong></td>
<td>216 mg/dL</td>
<td>168 mg/dL</td>
<td>-48 mg/dL</td>
</tr>
<tr>
<td><strong>Triglycerides</strong></td>
<td>129 mg/dL</td>
<td>81 mg/dL</td>
<td>-48 mg/dL</td>
</tr>
<tr>
<td><strong>LDL</strong></td>
<td>145 mg/dL</td>
<td>107.3 mg/dL</td>
<td>-37.8 mg/dL</td>
</tr>
<tr>
<td><strong>HDL</strong></td>
<td>45 mg/dL</td>
<td>41.3 mg/dL</td>
<td>-3.8 mg/dL</td>
</tr>
<tr>
<td><strong>Glucose</strong></td>
<td>88 mg/dL</td>
<td>91 mg/dL</td>
<td>+3 mg/dL</td>
</tr>
</tbody>
</table>
Reinhardt Data Cont.
Reinhardt Data Cont.

![Graph showing glucose levels over different intervals.](image)
Social/Cultural Outcomes

- Family/Community Support Very Significant
- Transformation of Space to Accommodate DDP Needs
- Time Commitment was Major Source of DDP Anxiety
- Small Impact on Local Markets but Large Impact for Certain Businesses
- Expectations for Males and Females
- Price and Convenience were Major Factors
- We started out with ten Native research subjects and fifteen non-Native research subjects. By the end of the implementation phase, twelve were Native and seven were non-Native.
DDP Guilt

• Resulted from straying from commitment level, failure to journal, inability to share, dreams, cravings, etc.

“I've lost too many hours of sleep over DDP guilt to ignore it any longer!

My version of DDP guilt isn't about my diet commitment, which I've kept, but about logging it. I'm disappointed in myself for not keeping that part of the deal, but there it is, here I am, and here I go with what I'm hoping will be a strong finish.’’

-Nancy Irish, blog entry November 27, 2012
Legal/Political Outcomes

• Treaty rights and boundaries made a difference in access to foods between Native and non-Native and between tribes.
• Differences in limits, seasons and other rules.
• Organizational policies also limited DDP interactions
  – Parking limited for DDP events
  – Website access limited for non-NMU
  – Potlucks not allowed
  – No outside food or drinks allowed
Indigenous Foods Cook-Off

• Three Teams:
  – Elder Berries
  – Nishin Miidjim
  – Maized and Confused

• Provided with mystery ingredients

• 5 hours to prepare an entre, a side, and a dessert

• Judged by professional food tasters and audience members
DDP Three Year Follow-Up Study (by Nim Reinhardt)
Three Year Follow-Up Study (Cont.)

- Pulse (beats per minute)
- Cholesterol (mg/dL)
- Triglycerides (mg/dL)
- LDL (mg/dL)
- HDL (mg/dL)
- Glucose (mg/dL)
Three Year Follow-Up Study (Cont.)

- Survey Outcomes
  - 100% reported continuing to consume some DDP foods
  - 56% reported that they continue to eat at least 25% or higher on a daily basis.
  - 89% report learning about Indigenous foods from their experience with the DDP including hunting, fishing, gardening and foraging skills.
  - 78% eat a home cooked meal daily
  - 44% exercise on a daily basis
  - 33% reported they no longer required medication(s)
Three Year Follow-Up Study (Cont.)

• The results show that research subjects tended to show significant decreases in positive outcomes the further they drifted away from DDP foods.
• While all of the research subjects reported retaining many lessons from the DDP, they tended to drift away DDP foods nonetheless.
• This is most likely due to price and convenience factors which also played a major role during the original study.
• The biggest difference may have been that they were not committed to the diet after the DDP implementation phase, so they reverted back to many of their pre-DDP eating habits.
DDP Publications


• Upcoming publications:
  – Manuscript titled “Eating Our Words: Food Provisions in Treaties between the United States and American Indian Tribes” by Martin Reinhardt.
Recommendations

• Work with local food businesses, organizations, and governments to increase availability of, and access to, high quality/low cost Indigenous foods on a local level.
  – Encourage new Indigenous food start-ups
  – Request changes in established businesses
  – Introduce new ideas for government programs that provide food and/or other incentives

• Provide a broad range of ongoing educational opportunities for community members to learn about Indigenous foods.
  – Gardening classes/seed swaps
  – Hunting/fishing/foraging events
  – Posting shopping tips, recipes, and experiences on social media
  – Cooking demonstrations
DDP Links

DDP Facebook Site
http://www.facebook.com/groups/decolonizingdietproject/

DDP Group Site
https://share.nmu.edu/moodle/login/index.php

DDP Flickr Site
http://www.flickr.com/photos/decolonizingdietproject

DDP Blog Site
http://decolonizingdietproject.blogspot.com/
Miigwech

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