Dysphagia goes International

Introducing the International Dysphagia Diet Standardization Initiative (IDDSI)
Objectives

- Identify differences between the NDD and IDDSI
- Apply IDDSI guidelines to facility menus and procedures
- Develop a plan to implement IDDSI guidance

Why International?

Affects 8% of population globally
~20+ million in USA

Dysphagia Quick Review

- Incidence crosses lifespan
- Infant /child/adolescent:
  - Congenital, acute infection, injury, neurodevelopmental delay
- Adults:
  - Gastro-esophageal and immunologic
  - Elderly
  - Neurologic and cancer

The Vicious Cycle of Dysphagia

Adapted from Brady R, 1999
Food Texture & Liquid Consistency Modifications

Objective: Safety - Minimize risk for aspiration and choking

Goal: Maximize normal eating - without compromising nutrition or hydration status

Before any “Dysphagia Diet”

- Never a ‘household’ term
- Textures were Puree, Ground Meat, Chopped Meat
  - Pureed Diet was “baby food”
National Dysphagia Diet (NDD)

- Published in 2002
- Defined food and liquid consistencies
- Set guidelines for allowed foods and foods to avoid
- Current day NDD “problems”:
  - Completed prior to gum thickeners
  - Does not address pediatrics

National Dysphagia Diet

- Terminology guidelines for solid foods:
  - Level 1 - Dysphagia Pureed
    - Smooth, cohesive, pudding-like, does not require chewing
  - Level 2 - Dysphagia Mechanically Altered
    - Moist, soft textured foods with some cohesion
  - Level 3 - Dysphagia Advanced
    - Soft-solid foods, nearly a regular diet that requires more chewing
  - Level 4 - Regular Diet
NDD Viscosity & Liquids

- Thin 1-50 cP
  - Think water!
- Nectar-like 51-350 cP
  - Easily pourable and similar to a thick cream soup
- Honey-like 351 – 1750 cP
  - Less pourable, drizzles from a cup
- Spoon-thick (pudding) >1750 cP
  - Holds shape, not pourable, eaten with a spoon

Introducing IDDSI

- Workgroup started in 2013; phased approach / work streams

The International Dysphagia Diet Standardisation Initiative (IDDSI) was founded in 2013 with the goal of developing new global standardised terminology and definitions to describe texture modified foods and thickened liquids used for individuals with dysphagia of all ages, in all care settings, and all cultures.

Three years of ongoing work by the International Dysphagia Diet Standardisation Committee has culminated in a final dysphagia diet framework consisting of a continuum of 8 levels (0-7). Levels are identified by numbers, text labels and colour codes.
IDDSI

Changing the way we look at consistencies

NDD Labels
- Regular
- Mechanically Advanced
- Mechanically Altered
- Pureed (Blenderized)

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5. MINCED & MOIST

| Description/characteristics | • Can be eaten with a fork or spoon  
|                            | • Could be eaten with chopsticks in some cases, if the individual has very good hand control  
|                            | • Can be scooped and shaped (e.g. into a ball shape) on a plate  
|                            | • Soft and moist with no separate thin liquid  
|                            | • Small lumps visible within the food  
|                            |   ▶ Paediatric, 2 mm lump size  
|                            |   ▶ Adult, 4mm lump size  
|                            | • Lumps are easy to squash with tongue  
| Texture restrictions shown in summary table |  
| Physiological rationale for this level of thickness | • Biting is not required  
|                                                    | • Minimal chewing is required  
|                                                    | • Tongue force alone can be used to break soft small particles in this texture  
|                                                    | • Tongue force is required to move the bolus  
|                                                    | • Pain or fatigue on chewing  
|                                                    | • Missing teeth, poorly fitting dentures  

| Fork Pressure test | • When pressed with a fork the particles should easily be separated between and come through the tines/prongs of a fork  
|                   | • Can be easily mashed with little pressure from a fork [pressure should not make the thumb nail Blanch to white]  
| Fork Drip test    | • A scooped sample sits in a pile or can mound on the fork and does not easily or completely flow or fall through the tines/prongs of a fork  
| Spoon Tilt test   | • Cohesive enough to hold its shape on the spoon  
|                   | • A full spoonful must slide/pour off the spoon if the spoon is tilted or turned sideways or shaken lightly; the sample should slide off easily with very little food left on the spoon; i.e. the sample should not be sticky  
|                   | • A scooped mound may spread or slump very slightly on a plate  
| Chopstick test    | • Chopsticks can be used to scoop or hold this texture if the sample is moist and cohesive and the person has very good hand control to use chopsticks  
| Finger test       | • It is possible to easily hold a sample of this texture using fingers; small soft, smooth, rounded particles can be easily squashed between fingers. The material will feel moist and leave fingers wet.  

### MINCED & MOIST

Use slot between fork prongs (4mm) to determine whether minced pieces are the correct or incorrect size.

Note - lump size requirements for all foods in Level 5 Minced & Moist:
- Paediatric, 2mm lump size
- Adult, 4mm lump size

### SOFT & BITE-SIZED

**Description/characteristics**
- Can be eaten with a fork, spoon or chopsticks
- Can be mashed/broken down with pressure from fork, spoon or chopsticks
- A knife is not required to cut this food, but may be used to help loading a fork or spoon
- Chewing is required before swallowing
- Soft, tender and moist throughout but with no separate thin liquid
- 'Bite-sized' pieces as appropriate for size and oral processing skills
  - Paediatric, 8mm pieces
  - Adults, 15 mm = 1.5 cm pieces

**Texture restrictions shown in summary table**

**Physiological rationale for this level of thickness**
- Biting is not required
- Chewing is required
- Tongue force and control is required to move the food for chewing and to keep it within the mouth during chewing
- Tongue force is required to move the bolus for swallowing
- Pain or fatigue on chewing
- Missing teeth, poorly fitting dentures
Fork Pressure test

- Pressure from a fork held on its side can be used to ‘cut’ or break this texture into smaller pieces.
- When a sample the size of a thumb nail (1.5 x 1.5 cm) is pressed with the base of a fork to a pressure where the thumb nail blanches to white, the sample squashes and changes shape, and does not return to its original shape when the fork is removed.

Spoon Pressure test

- Pressure from a spoon held on its side can be used to ‘cut’ or break this texture into smaller pieces.
- When a sample the size of a thumb nail (1.5 cm x 1.5 cm) is pressed with the bowl of a spoon, the sample squashes and changes shape, and does not return to its original shape when the spoon is removed.

Chopstick test

- Chopsticks can be used to break this texture into smaller pieces.

Finger test

- Use a sample the size of a thumb nail (1.5 cm x 1.5 cm). It is possible to squash a sample of this texture using finger pressure such that the thumb and index finger nails blanch to white. The sample will not return to its initial shape once pressure is released.

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**SOFT & BITE-SIZED**

Thumb nail blanched to white

Sample squashes and does not return to its original shape when pressure is released
REGULAR

Description/characteristics
- Normal, everyday foods of various textures that are developmentally and age appropriate
- Any method may be used to eat these foods
- Foods may be hard and crunchy or naturally soft
- Sample size is not restricted at Level 7, therefore, foods may be of a range of sizes
  - Smaller or greater than 8mm pieces (Paediatric)
  - Smaller or greater than 15 mm = 1.5 cm pieces (Adults)
- Includes hard, tough, chewy, fibrous, stringy, dry, crispy, crunchy, or crumbly bits
- Includes food that contains pips, seeds, pith inside skin, husks or bones
- Includes ‘dual consistency’ or ‘mixed consistency’ foods and liquids

Physiological rationale for this level of thickness
- Ability to bite hard or soft foods and chew them for long enough that they form a soft cohesive ball/bolus that is ‘swallow ready’
- An ability to chew all food textures without tiring easily
- An ability to remove bone or gristle that cannot be swallowed safely from the mouth

TRANSITIONAL FOODS

Description/characteristics
- Food that starts as one texture (e.g. firm solid) and changes into another texture specifically when moisture (e.g. water or saliva) is applied, or when a change in temperature occurs (e.g. heating)

Physiological rationale for this level of thickness
- Biting not required
- Minimal chewing required
- Tongue can be used to break these foods once altered by temperature or with addition of moisture/saliva
  - May be used for developmental teaching or rehabilitation of chewing skills (e.g. development of chewing in the paediatric population and developmental disability population; rehabilitation of chewing function post stroke)
### Fork Pressure Test
- After moisture or temperature has been applied, the sample can be easily deformed and does not recover its shape when the force is lifted.
- Use a sample the size of the thumb nail (1.5 cm x 1.5 cm), place 1 ml of water on the sample and wait one minute. Apply fork pressure using the base of the fork until the thumb nail blanches to white. The sample is a transitional food texture if after removing the fork pressure:
  - The sample has been squashed and disintegrated and no longer looks like its original state
  - Or it has melted significantly and no longer looks like its original state (e.g. ice chips).

### Spoon Pressure Test
- As above, using the bowl of the spoon in place of the fork.

### Chopstick Test
- Use a sample the size of the thumb nail (1.5 cm x 1.5 cm), place 1 ml of water on the sample and wait one minute. The sample should be easily broken apart using chopsticks with minimal pressure.
- Use a sample the size of the thumb nail (1.5 cm x 1.5 cm), place 1 ml of water on the sample and wait one minute. The sample will break apart completely by rubbing the sample between the thumb and index finger. The sample will not return to its initial shape.

### Finger Test
- Use a sample the size of the thumb nail (1.5 cm x 1.5 cm), place 1 ml of water on the sample and wait one minute. The sample will break apart completely by rubbing the sample between the thumb and index finger. The sample will not return to its initial shape.

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### Transitional Foods

- Apply 1 ml of water to sample
- Wait 1 minute

**Thumb nail blanched to white**

Sample squashes and fractures, and does not return to its original shape when pressure is released.

IDDSI Transitional foods may include and are not limited to:
- Ice chips
- Ice cream/sherbet if assessed as suitable by a Dysphagia specialist
- Japanese Dysphagia Training jelly sliced 1 mm x 1 cm
- Wafers (also includes Religious Communion wafer)
- Waffle cones used to hold ice cream
- Some biscuits/cookies/crackers
- Potato chips—only the crushed type (e.g., Pringles)
- Shortbread
- Prussi chips

**Specific examples used in paediatric or adult disability dysphagia management**

Commercially available foods* that are transitional foods textures include but are not limited to:
- Veggie Stix™
- Cheeto Puffs™
- Rice Puffs™
- Baby Mum Mum™
- Gerber Graduate Puffs™

*The mention of certain manufacturers’ products does not imply that they are endorsed or recommended in preference to others of a similar nature that are not mentioned.
IDDSI vs. NDD

• Same?
  • Allowed foods

• Differences?
  • Level naming conventions
  • IDDSI offers additional food levels
    • Liquidized
    • Transitional
  • IDDSI offers practical testing tools
    • Size of pieces for Level 5 & 6
    • Fork, chopsticks, fingers, dripping...

NDD Labels

Spoon-thick
Honey-like
Nectar-like
[Natural beverages]
Thin
Step 1

- Use the correct syringe
Step 2

• Test liquid via flow test

1. Remove plunger
2. Cover nozzle with finger and fill 10ml
3. Release nozzle & start timer
4. Stop at 10 seconds

• Practical Tip: best used for,
  • ‘Natural’ beverages
  • Confirming initial liquid recipes
  • Random check of recipe or staff training / reliability

Step 3

• Compare remaining liquid to IDDSI level

A small amount may flow through and form a tail below the fork. 
Drips or run off continuously through the fork prongs.
### THIN

| Description/Characteristics | Flows like water  
|                           | Fast flow  
|                           | Can drink through any type of teat/nipple, cup or straw as appropriate for age and skills |

| Physiological rationale for this level of thickness | Functional ability to safely manage liquids of all types |

**Testing method**

See also [IDDSI Testing Methods document](http://iddsi.org/framework/drink-testing-methods/)

| IDDSI Flow Test* | Test liquid flows through a 10 mL slip tip syringe completely within 10 seconds, leaving no residue (see IDDSI Flow Test Instructions*) |

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### SLIGHTLY THICK

| Description/Characteristics | Thicker than water  
|                           | Requires a little more effort to drink than thin liquids  
|                           | Flows through a straw, syringe, teat/nipple  
|                           | Similar to the thickness of commercially available ‘Anti-regurgitation’ (AR) infant formula |

| Physiological rationale for this level of thickness | Predominantly used in the paediatric population as a thickened drink that reduces speed of flow yet is still able to flow through an infant teat/nipple. Consideration to flow through a teat/nipple should be determined on a case-by-case basis. |

**Testing method**

See also [IDDSI Testing Methods document](http://iddsi.org/framework/drink-testing-methods/)

| IDDSI Flow Test* | Test liquid flows through a 10 mL slip tip syringe leaving 1–4 mL in the syringe after 10 seconds (see IDDSI Flow Test Instructions*) |
### MILDLY THICK

**Description/Characteristics**
- Flows off a spoon
- Sippable, pours quickly from a spoon, but slower than thin drinks
- Effort is required to drink this thickness through standard bore straw (standard bore straw = 0.209 inch or 5.3 mm diameter)

**Physiological rationale for this level of thickness**
- If thin drinks flow too fast to be controlled safely, these Mildly Thick liquids will flow at a slightly slower rate
- May be suitable if tongue control is slightly reduced.

### TESTING METHOD

*See also IDDSI Testing Methods document or http://iddsi.org/framework/drink-testing-methods/

| IDDSI Flow Test* | Test liquid flows through a 10 mL slip tip syringe leaving 4 to 8 mL in the syringe after 10 seconds (see IDDSI Flow Test Instructions*) |

### LIQUIDISED MODERATELY THICK

**Description/characteristics**
- Can be drunk from a cup
- Some effort is required to suck through a standard bore or wide bore straw (wide bore straw = 0.275 inch or 6.9 mm)
- Cannot be pipped, layered or moulded on a plate
- Cannot be eaten with a fork because it drips slowly in dollops through the prongs
- Can be eaten with a spoon
- No oral processing or chewing required – can be swallowed directly
- Smooth texture with no ‘bits’ (lumps, fibres, bits of shell or skin, husk, particles of gristle or bone)

**Texture restrictions shown in summary table**

**Physiological rationale for this level of thickness**
- If tongue control is insufficient to manage Mildly Thick drinks (Level 2), this Liquidised/Moderately thick level may be suitable
- Allows more time for oral control
- Needs some tongue propulsion effort
- Pain on swallowing

<p>| IDDSI Flow Test* | Test liquid flows through a 10 mL slip tip syringe leaving &gt;8 mL in the syringe after 10 seconds (see Syringe Test Guide*) |
| Fork Drip Test | Drips slowly in dollops through the prongs of a fork |
| | Tines/Prongs of a fork do not leave a clear pattern on the surface |
| | Spreads out if spilled onto a flat surface |
| Spoon Tilt Test | Easily pours from spoon when tilted, does not stick to spoon |
| Chopstick Test | Chopsticks are not suitable for this texture |
| Finger Test | It is not possible to hold a sample of this food texture using fingers, however, this texture slides smoothly and easily between the thumb and fingers, leaving a residue |</p>
<table>
<thead>
<tr>
<th>Description/characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Usually eaten with a spoon (a fork is possible)</td>
</tr>
<tr>
<td>• Cannot be drunk from a cup</td>
</tr>
<tr>
<td>• Cannot be sucked through a straw</td>
</tr>
<tr>
<td>• Does not require chewing</td>
</tr>
<tr>
<td>• Can be piped, layered or molded</td>
</tr>
<tr>
<td>• Shows some very slow movement under gravity but cannot be poured</td>
</tr>
<tr>
<td>• Falls off spoon in a single spoonful when tilted and continues to hold shape</td>
</tr>
<tr>
<td>• No lumps</td>
</tr>
<tr>
<td>• Not sticky</td>
</tr>
<tr>
<td>• Liquid must not separate from solid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Texture restrictions shown in summary table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiological rationale for this level of thickness</td>
</tr>
<tr>
<td>• If tongue control is significantly reduced, this category may be</td>
</tr>
<tr>
<td>easiest to manage</td>
</tr>
<tr>
<td>• Requires less propulsion effort than Minced &amp; Minced (Level 5),</td>
</tr>
<tr>
<td>Soft &amp; Bite-Sized (Level 6) and Regular (Level 7) but more than</td>
</tr>
<tr>
<td>Liquidised/Moderately thick (Level 3)</td>
</tr>
<tr>
<td>• No binging or chewing is required</td>
</tr>
<tr>
<td>• Increased residue is a risk if too sticky</td>
</tr>
<tr>
<td>• Any food that requires chewing, controlled manipulation or bolus formation</td>
</tr>
<tr>
<td>are not suitable</td>
</tr>
<tr>
<td>• Pain on chewing or swallowing</td>
</tr>
<tr>
<td>• Missing teeth, poorly fitting dentures</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IDDSI Flow test*</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No flow or drip through a slip tip syringe after 10 sec (refer to</td>
</tr>
<tr>
<td>IDDSI Flow test instructions)*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fork Pressure test</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The tines/prongs of a fork can make a clear pattern on the surface, and/or</td>
</tr>
<tr>
<td>the food retains the indentation from the fork</td>
</tr>
<tr>
<td>• No lumps</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fork Drip test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fork Drip test contd.</td>
</tr>
<tr>
<td>• Sample sits in a mound/pile above the fork; a small amount may flow through</td>
</tr>
<tr>
<td>and form a tail below the fork tines/prongs, but it does not flow or drip</td>
</tr>
<tr>
<td>continuously through the prongs of a fork</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spoon Tilt test</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cohesive enough to hold its shape on the spoon</td>
</tr>
<tr>
<td>• A full spoonful must plop off the spoon if the spoon is tilted or</td>
</tr>
<tr>
<td>turned sideways; a very gentle flick may be necessary to dislodge the sample</td>
</tr>
<tr>
<td>from the spoon, but the sample should slide off easily with very little food</td>
</tr>
<tr>
<td>left on the spoon; i.e. the sample should not be firm and sticky</td>
</tr>
<tr>
<td>• May spread out slightly or slump very slowly on a flat plate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chopstick test</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Chopsticks are not suitable for this texture</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Finger test</th>
</tr>
</thead>
<tbody>
<tr>
<td>• It is just possible to hold a sample of this texture using fingers. The</td>
</tr>
<tr>
<td>texture slides smoothly and easily between the fingers and leaves</td>
</tr>
<tr>
<td>noticeable residue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indicators that a sample is too thick</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Does not fall off the spoon when tilted</td>
</tr>
<tr>
<td>• Sticks to spoon</td>
</tr>
</tbody>
</table>
IDDSI vs. NDD

- Same?
  - Consistency “results” by level

- Differences?
  - Level naming conventions
  - IDDSI has an added level to address pediatric liquid needs
  - IDDSI offers a practical testing method with a syringe
    - Pre-thickened can be trusted to be ‘correct’
    - Manufacturer’s instructions will be set against the IDDSI standards
      - BUT...thickening is still variable
Moving from NDD to IDDSI
Now what?

- Level naming conventions
  - Manufacturers WILL make the switch

- Start conversations to make a plan and timeline
  - Involve your SLP !!!!!!!

- Tackle one category at a time
  - Level naming convention
  - Food / Liquid
  - Liquid / Food

- With foods – review menu and recipes
  - Do some level 5 & 6 particle size checks
  - Adjust recipes where needed/possible

- With liquids
  - Acquire correct syringe size
  - Evaluate natural beverages in use using the IDDSI flow test
  - {random} Check your thickened beverage ‘recipes’ against IDDSI levels
Thank you for participating in today’s session!

This presentation is intended to provide general information about dysphagia and texture modified dietary practices but is not intended to provide medical advice.

Presentation Author: Debra Zwiefelhofer, RDN, LD
POST TEST

• Identify 3 steps your facility can take now to begin to move toward adopting the IDDSI standards into practice.

1.

2.

3.

References


4. www.IDDSI.org