Understanding Eating Disorders (進食失調)
- Anorexia Nervosa (厭食症)

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Content
- What is AN?
  - Clinical picture and presentation
- Why?
  - Aetiology and risk factors
- How bad could it be?
  - Assessment: medical risk and psychiatric comorbidities
- How to get better?
  - Treatment
- How well could they recover?
  - Prognosis
- What can I do?
  - Take home message

What are Eating Disorders?
- Two main categories
  - Anorexia nervosa
    - Restricting (限制型)
    - Binge-purging (清除型)
  - Bulimia nervosa
    - Binges-purging
    - Non-purging
  - Others: EDNOS: heterogeneous, 50-70%
- Significant overlap
- Operationally defined in ICD 10 and DSM IV

What is Anorexia Nervosa?
- ICD 10 DSM IV
1. Significant weight loss [BMI<17.5kg/m²]
or 15% below; or failure to gain weight
or growth
2. Self induced weight loss by:
   - Avoiding fattening foods
   - Vomiting
   - Excessive exercise
   - Diuretics/stimulants
3. Body Image distortion. Dread of fatness, a persistent overvalued idea
4. Abnormalities of hypothalamic-pituitary-gonadal axis:
   - Amenorrhea
   - Libido, male potency, T3
   - GH, cortisol
5. Puberty delayed if onset prepubertal

The Maudsley Body-Mass Index table (kg/m²)
Key:

<table>
<thead>
<tr>
<th>20-25</th>
<th>NORMAL WEIGHT RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.5-20</td>
<td>UNDERWEIGHT</td>
</tr>
<tr>
<td>Insufficient or absent menstruation. Ovulation failure</td>
<td></td>
</tr>
<tr>
<td>15-17.5</td>
<td>ANOREXIA NERVOSA</td>
</tr>
<tr>
<td>Loss of substance from all body organs and structure</td>
<td></td>
</tr>
<tr>
<td>13.5-15</td>
<td>SEVERE ANOREXIA NERVOSA</td>
</tr>
<tr>
<td>All organ systems compromised: bone, heart, muscle, brain</td>
<td></td>
</tr>
<tr>
<td>12-13.5</td>
<td>CRITICAL ANOREXIA NERVOSA</td>
</tr>
<tr>
<td>Inpatient treatment recommended. Organs begin to fail: muscle, bone, marrow, heart</td>
<td></td>
</tr>
<tr>
<td>&lt;12</td>
<td>LIFE THREATENING ANOREXIA NERVOSA</td>
</tr>
</tbody>
</table>

Clinical presentation
- Visible & Valued
  - AN makes the person feel safe, helps numb emotions, communicates distress, gives them an identity
  - People with AN ignore risks to physical health & are often reluctant to change
  - Others concerned
- High mortality (up to 20%) & disability
- Teenage onset
- Described in different cultures & across time

Schmidt & Treasure, 2006 Br J Clin Psych; Simon et al., 2005 Psych Med
Clinical presentation

- Usually young, female, perfectionistic traits (Female to male ratio 10:1)
- Insidious onset
- Adoption of “healthy lifestyle”
  - Often vegetarian, excessive exercise, rigid exercise regime
- Interest in food and nutrition common
- At meals may cut up food and redistribute it on the plate
- Insist on “overweight”, although medically underweight
- May use laxatives, diuretics, stimulants
- Binging and purging (if present) usually secret
- Amenorrhea precedes obvious weight loss in 20%
- Often described making excuses on calorie restriction “I’ve eaten earlier”
- May have attended for medical investigation eg ? malabsorption ? amenorrhoea
- There may be over representation of social classes I and II

Epidemiology of Anorexia Nervosa

- Incidence: 4-5/100,000 female to male ratio 10:1
- the third most common illness in teenage girls
- Prevalence:
  - 250 per 100,000 females
  - 22 per 100,000 males
  - School and college women prevalence 1%
  - Models and ballet dancers prevalence 4-6%
  - May be culture bound (Less in non industrialized countries and African Americans)
- Onset:
  - Usually teenage/young adulthood, within a few years of the menarche

Aetiology

- Controversial
- Probably multifactorial
- Feminist view of cultural demand, media, fashion
- Family interactions – maladaptive patterns of behavior
- Adjustment to adolescent autonomy/sexual maturity
- Individual low self esteem and perfectionism
- Both AN and BN are strongly familial
- Relatives are 7-12 times at higher risk
- Twin studies suggest both AN and BN highly heritable (60%)
- Candidate genes related to:
  - reward/appetitive motivation; emotionality/stress response (SHT-transporter); basic feeding mechanisms, cognitive function.
  - 5HT implicated (related to satiety, mood, impulsivity and obsessi
  - Perpetuated by reinforcement
- Secondary effects of starvation may increase obsessional and rigid concerns about food

Epidemiology of Anorexia Nervosa

- Risk factors: Family
  - family history of depression, family history of alcoholism, family conflict or trauma parental deprivation, sexual abuse, physical abuse, emotional abuse
- Risk factors: Society
  - social pressures on women, emphasis on thinness, role confusion, mixed messages for women
- Risk factors: Personal
  - poor problem-solving skills, low self-esteem, low mood, depression, high anxiety, nervousness, perfectionism, self-criticism, impulsivity, fears about sexuality, relationship problems, weight loss from physical illness
- Initial dieting & weight loss
  - Beginning of anorexia nervosa
    - secrecy & lying about dieting, continued weight loss, hunger
  - Anorexia nervosa takes over
    - extreme fear of weight gain, total preoccupation with food & weight, loss of hunger, harder to lose weight
- Symptoms of Starvation
  - cold intolerance, electrolyte disturbances, low blood sugar, dizziness, tiredness, lack of energy, lowered metabolic rate, lowered (or irregular) heart rate, muscle loss, moodiness, irritability, dry pasty skin, headaches, visual problems, poor sleep, water retention, gastrointestinal problems, irregular or absent periods

Case formulation of Anorexia Nervosa

- Predisposing factors
  - Individual
  - Familial
  - Cultural
- Precipitating factors
  - Dieting
    - increased control
    - increased self worth
- Perpetuating factors
  - Starvation symptoms
  - Aspects from others
  - Pro anorexia websites/files

Neurocognitive psychopathology of AN

- Poor set-shifting at expense of flexibility
- Weak central coherence
  - Superior detail processing
  - Poor global integration
- Theory of Mind
Examination in anorexia nervosa

- Reluctant attendee, brought by a family member
- Gaunt face, layers of bulky clothes (sensitivity to cold and disguises weight loss)
- Extremities blue and cold (may be misdiagnosed as eg connective tissue disease)
- Skin and hair is dry and downy: may have lanugo
- May have bradycardia and hypotension
- When severe, may have a proximal myopathy, evident in squat test
- Petichial rash infrequent

Medical complications of Anorexia Nervosa

- Endocrine
  - Amenorrhoea, reduced LH and FSH
  - Impaired dexamethasone suppression
  - Raised GH, reduced T3 and T4
  - Delayed TRH response
- Metabolic
  - Dehydration, hypoglycemia, raised cholesterol, raised LFTs, amylase, reduced plasma proteins (oedema), Ca, Mg, Phosphate
- Hematological:
  - Marrow affected, Hb 9g, Wcc 4,000
- GI:
  - Enlarged salivary glands, dental caries + enamel erosion
  - Reduced gastric emptying, dilation, pancreatitis
- CNS:
  - Reduced concentration
  - Enlarged ventricles

Assessment of Anorexia Nervosa

- Engage patient
  - Often ambivalent, use empathic approach
- Risk assessment
  - Relates to need for admission/specialist intervention
  - Medical risk
  - Binging/purging behaviours
  - Suicidal risk
  - Physical exam, BMI and other parameters
  - Laboratory tests
- Assessment of psychological factors
  - Predisposing factors
  - Precipitating factors
  - Perpetuating factors
- Give diagnosis and feed back to patient
- Engage patient in treatment - motivational interview

Summary Measure of Risk

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>Test or Investigation</th>
<th>Concern</th>
<th>Alert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td>BMI</td>
<td>&lt;16</td>
<td>&lt;12</td>
</tr>
<tr>
<td></td>
<td>Weight loss/week</td>
<td>&gt;0.5kg</td>
<td>&gt;1.0kg</td>
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<tr>
<td></td>
<td>Skin Breakdown</td>
<td>&gt;0.1cm</td>
<td>&gt;0.2cm</td>
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<tr>
<td>Circulation</td>
<td>Systolic BP</td>
<td>&lt;90</td>
<td>&lt;80</td>
</tr>
<tr>
<td></td>
<td>Diastolic BP</td>
<td>&lt;90</td>
<td>&lt;60</td>
</tr>
<tr>
<td>Musculo-skeletal</td>
<td>Unable to get up without using arms for balance</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unable to sit up without using arms as leverage</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Temperature</td>
<td>&gt;37</td>
<td>&lt;36.5</td>
</tr>
<tr>
<td>Bone Marrow</td>
<td>WCC</td>
<td>&lt;4.0</td>
<td>&lt;2.0</td>
</tr>
<tr>
<td></td>
<td>Neutrophil count</td>
<td>&gt;1.5</td>
<td>&gt;1.0</td>
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<tr>
<td></td>
<td>Redinal tube (overall and MOG related – no acute risk)</td>
<td>*</td>
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<tr>
<td></td>
<td>Plasma</td>
<td>&lt;150</td>
<td>&lt;100</td>
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Medical Complications of Anorexia Nervosa

- Musculoskeletal:
  - Osteoporosis, cramps and fractures
- CVS:
  - Bradycardia,
  - Reduced BP
  - Increased QT interval, oedema
- Others:
  - Bacterial infection, lanugo

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<tr>
<td>Salt / water balance</td>
<td>K+</td>
<td>&lt;3.5</td>
<td>&lt;3.0</td>
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<tr>
<td></td>
<td>Na+</td>
<td>&lt;135</td>
<td>&lt;130</td>
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<tr>
<td></td>
<td>Mg++</td>
<td>0.5-0.7</td>
<td>&lt;0.5</td>
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<td></td>
<td>PO4--</td>
<td>0.5-0.8</td>
<td>&lt;0.5</td>
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<tr>
<td></td>
<td>Urea</td>
<td>&gt;7</td>
<td>&gt;10</td>
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<tr>
<td>Liver</td>
<td>Bilirubin</td>
<td>&gt;20</td>
<td>&gt;40</td>
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<tr>
<td></td>
<td>Alkaline</td>
<td>&gt;110</td>
<td>&gt;200</td>
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<tr>
<td></td>
<td>AST</td>
<td>&gt;40</td>
<td>&gt;80</td>
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<tr>
<td></td>
<td>ALT</td>
<td>&gt;45</td>
<td>&gt;90</td>
</tr>
<tr>
<td></td>
<td>GGT</td>
<td>&gt;45</td>
<td>&gt;90</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Albumin</td>
<td>&lt;35</td>
<td>&lt;32</td>
</tr>
<tr>
<td></td>
<td>Glucose</td>
<td>&lt;3.5</td>
<td>&lt;2.5</td>
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<tr>
<td></td>
<td>Corrected QT interval (QTC)</td>
<td>&gt;450msec</td>
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<td>Differential Diagnosis</td>
<td>ECG</td>
<td>Arrhythmias</td>
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Psychiatric Comorbidities

- Overall 80%
- Affective disorder in more than 60%
- Obsessive compulsive disorder in up to 1/3
- Other anxiety disorders, panic disorder, agoraphobia, specific phobias
- Personality disorders:
  - Anxious avoidant
  - Anankastic
  - Borderline

Treatment of AN

Set Target Weight and Normalise Eating:
- Regular weighing
- Homework - diary keeping and problem solving
- Behavioural regimes with token economy and nurse supervision (supported meals and snacks) during and after meals for controlled weight gain
- 0.5-1kg per week to BMI > 19
- By multidisciplinary team approach

Education and psychotherapy:
- Individual cognitive and insight orientated psychotherapy: CBT, IPT, CAT
- Family therapy (Maudsley Model) - three phases for adolescences.
- Carers support groups

Medication:
- Limited role
  - Antidepressants:
    - Addition to in-patient refeeding does not improve outcome
    - Fluoxetine does not reduce relapse rates
  - Antipsychotics:
    - Conventional antipsychotics:
      - Chlorpromazine promotes appetite
      - Addition to in-patient refeeding does not improve outcome
    - Olanzapine:
      - Improves weight gain, reduces AN rumination, obsessive compulsive symptoms

Prognosis of Anorexia Nervosa

- Duration illness > 2-3 years
- 60% Weight restored
- 55% Menstruating
- 40% Normal eating behaviour
- 2/3 Employed, few married at 20 years follow up
- 25% Develop bulimia nervosa
- 10-30% with poor outcome
- Frequent relapse after recovery
- Mortality up to 5 %, including suicide (up to 20%)

In Adolescents
Excellent outcomes with family-based treatment
- 60% well at 1 year
- 90% well at 5 years

In Adults
Different psychotherapies (mainly individual) are better than non-specialist or dietary treatment alone
- 30% well at 1 year
- 40-50% well at 5 yrs
The reasons of using the Maudsley Model:

1. No one is blamed for the eating disorder, and recovery is prioritized over finding a cause.
2. The family is encouraged to separate the young person from the eating disorder, i.e., externalize the illness, and the target of intervention is the eating disorder.
3. The family’s own resourcefulness and expertise are respected.
4. Hospitalization is seen as a temporary solution.
5. Family members have assigned roles.
6. Medical safety precedes developmental issues.

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Take home messages

- **Myths:**
  - Eating disorder is not just eating problem
- **For yourselves:**
  - Eat healthy according to the food pyramid
  - Accept who you are and feel good about your body if your BMI is normal

- **For others:**
  - Distinguish normal dieting from AN symptoms
  - Denial of diet: not talking about it, dieting when underweighted
  - Change of food rules
  - Denial of hunger and craving
  - Covering up of weight loss with baggy clothes
  - Increased interest in food: shopping and cooking for others
  - Claims of needing to eat less than others or very small portions
  - Eating slowly with small mouthfuls
  - Avoid eating with others
  - Behaviour becoming more compulsive and ritualized
  - Becoming socially isolated and low in mood
  - Frequently disappearing to the bathroom during meal and after. The smell of vomit or excessive use of air fresheners in the house
  - New, increased and rigid exercise routine

- **Thank you!**

- **Questions?**