

**INVECCHIAMENTO
E LONGEVITÀ:
PIÙ GENI O
PIÙ AMBIENTE**

Firenze
Palazzo dei Congressi
30 Novembre
4 Dicembre 2010

55°
CONGRESSO
NAZIONALE

11° CORSO PER INFERMIERI
9° CORSO DI RIABILITAZIONE
6° CORSO PER PSICOLOGI
5° CORSO PER ASSISTENTI SOCIALI

PROGRAMMA AVANZATO

SOCIETÀ ITALIANA
DE GERONTOLOGIA
E GERIATRIA

Compliance e importanza dei fattori sensoriali

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Epidemiologia - Prevalenza di malnutrizione in vari setting assistenziali

La malnutrizione è comune, sotto-diagnosticata e sotto-trattata

- Analisi di studi che hanno valutato la malnutrizione con MNA in vari ambiti (oltre 10.000 soggetti anziani)
- Prevalenza media di malnutrizione
 - ✓ 1% in soggetti sani in comunità
 - ✓ 4% in pazienti che ricevono assistenza domiciliare
 - ✓ 5% in pazienti con malattia di Alzheimer che vivono in casa
 - ✓ 20% in pazienti ospedalizzati
 - ✓ 37% in pazienti istituzionalizzati

BAPEN Nutrition Screening Week (NSW) 2007 data.



Impatto della malnutrizione

Effect of Starvation on Organ Function

- ◆ Impaired muscle strength/mass
- ◆ Impaired thermoregulation
- ◆ Reduced respiratory function
- ◆ Reduced pancreatic function
- ◆ Immune deficits
- ◆ Reduced gastrointestinal function
- ◆ Osteoporosis
- ◆ Reduced cardiovascular function
- ◆ Reduced endocrine function
- ◆ Reduced mental function

Effect of Starvation on Outcomes

- ◆ Increased morbidity
- ◆ Increased mortality
- ◆ Decreased Quality of Life and functioning
- ◆ Increased length of hospital stay and admissions
- ◆ Increased health care costs

The cost of disease-related malnutrition in the UK and economic considerations for the use of oral nutritional supplements (ONS) in adults. Elia M, Stratton R, Russell C, Green C, Pan F; BAPEN, 2005.



Fattori di rischio di malnutrizione

➤ Fattori intrinseci

- ✓ Legati all'invecchiamento: perdita di appetito, modificazioni del cavo orale, **alterazione del gusto e dell'olfatto**, difficoltà di deglutizione
- ✓ Malattie e disabilità: patologie gastrointestinali, disturbi neurologici, psichiatrici, endocrini, insufficienza d'organo, altre condizioni cliniche (mal. infiammatorie, tumori), interventi chirurgici

➤ Fattori esterni

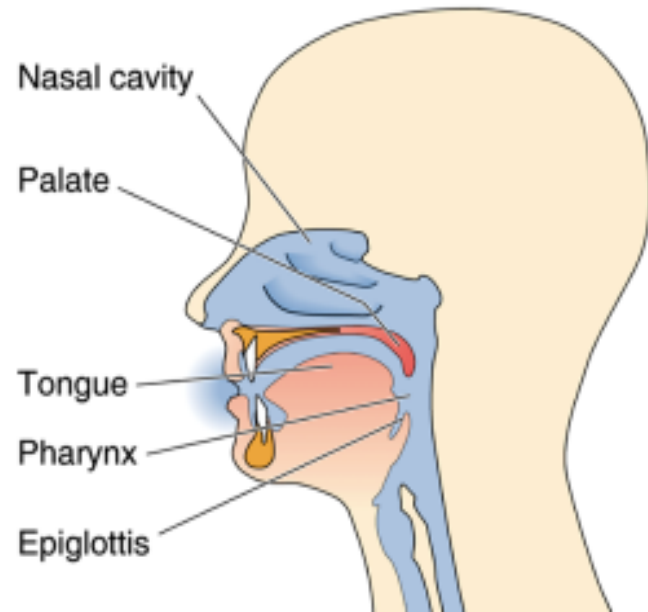
- ✓ Marginalità sociale
- ✓ Istituzionalizzazione
- ✓ Farmaci



Il gusto: un sistema complesso

Tongue, mouth, palate, pharynx, and epiglottis

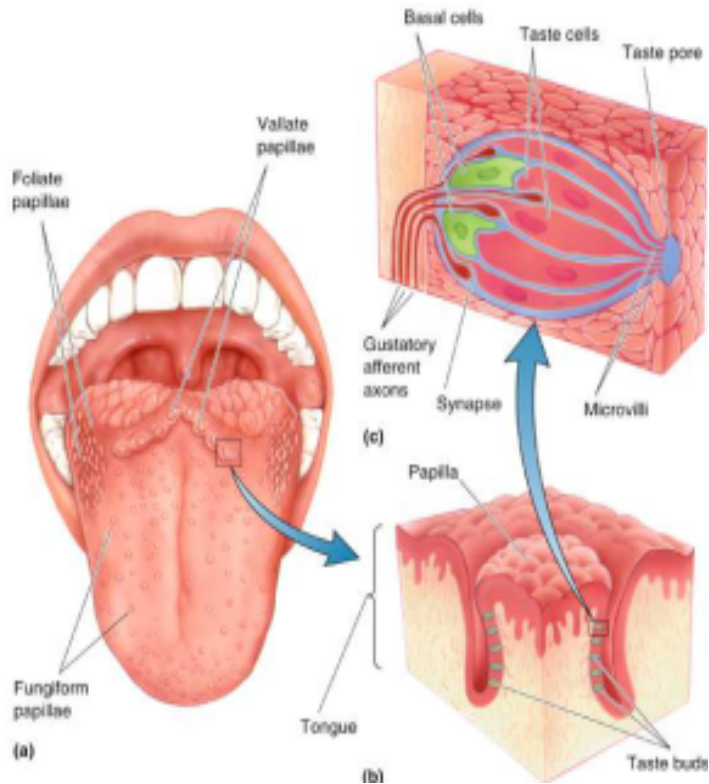
- ◆ The tongue is mainly composed of muscles. It is covered with a mucous membrane¹
- ◆ Small nodules of tissue (papillae) cover the upper surface of the tongue²
- ◆ Between the papillae are the taste buds, which provide the sense of taste²
- ◆ The tongue has about 10,000 taste buds
- ◆ In addition to taste, the tongue functions in moving food to aid chewing and swallowing, and it is important in speech^{1,2}



1. Standing S. 2008. *Gray's Anatomy 40th Edition*. Elsevier. Chapter 30: 503-505.
2. Standing S. 2008. *Gray's Anatomy 40th Edition*. Elsevier. Chapter 30: 506-509.



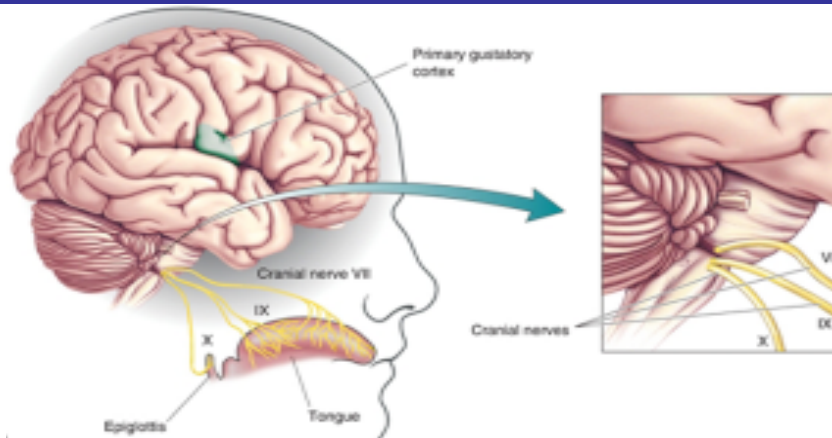
Il gusto: un sistema complesso



- ◆ Taste sensation is realized in the mouth when the chemicals in food are dissolved by saliva
- ◆ Free floating molecules enter a taste bud through the pore at its center
- ◆ Taste bud is activated by different mechanisms depending on the type of taste, then activates the appropriate cranial nerves



Il gusto: un sistema complesso



- ◆ Flavor molecules fit into receptors on the microvilli at the top of the cell, causing electrical changes that release transmitter onto the nerve ending at the bottom of the cell
- ◆ The nerve carries taste messages to the brain



Componenti del gusto

The sense of taste has to be one of the most important human senses

BASIC TASTE SENSES: Sweet Sour Salty Bitter Umami	ACCEPTABILITY Environment Culture Memory Genetics Age Personal condition (mood/health)
PALATABILITY Temperature Colour Shape Sound	FLAVOUR Aroma 'Mouth-feel' (texture/ thickness) Chemical senses



Areas of sensitivity on the tongue

- Tip of the tongue
Sweetness
- Back of the tongue
Bitterness
- Sides of tongues
Saltiness and sourness



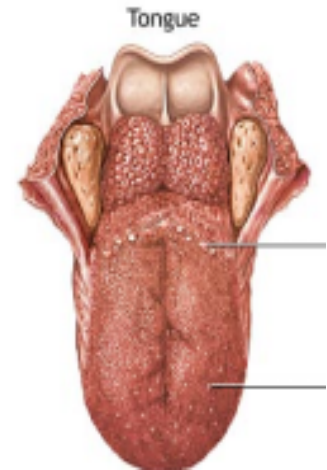
Effetti dell'invecchiamento sul gusto

- ◆ There are significant chemosensory losses with age.
- ◆ Psychophysical tests indicate that these losses consist of:
 - Elevated thresholds for taste and smell
 - Reduced intensity of supra-threshold stimuli
 - Diminished ability to discriminate among supra-threshold stimuli
 - Deficits in the ability to identify odors and tastes on the basis of taste and smell
 - Distorted taste or smell



Effetti dell'invecchiamento sul gusto

- ◆ The number of taste buds decreases
- ◆ Each remaining taste bud also begins to atrophy (lose mass)
- ◆ Usually salty and sweet tastes are lost first
- ◆ Conflicting results: some studies have indicated that normal aging by itself produces very little change in taste and smell.
- ◆ Changes may be related to diseases, medications, smoking, and environmental exposures.
- ◆ A certain number of foods are not going to taste good enough to satisfy the appetites of the elderly, so they might resort to using unhealthy eating habits
- ◆ The reduction in saliva could interfere with a dissolving food's reaction with receptor cells on the tongue



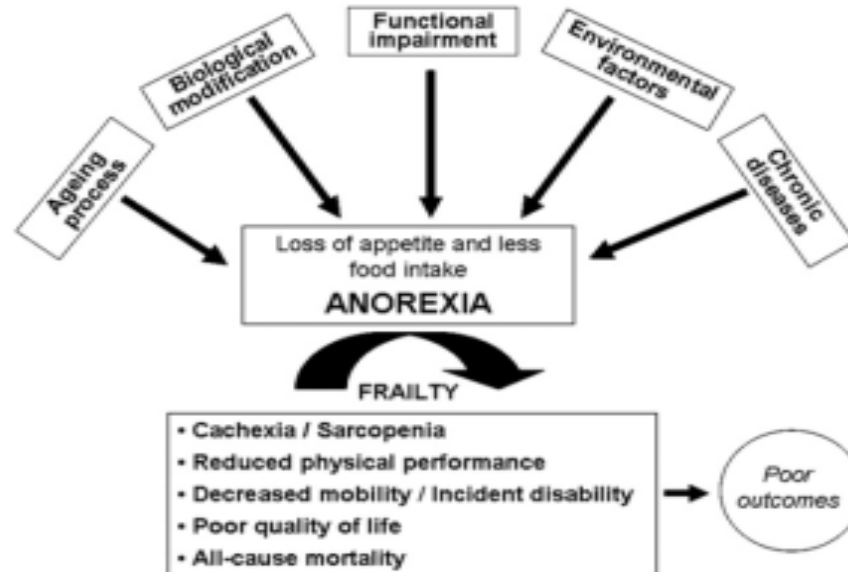
 **Anorexia of aging** 



Anorexia – Syndrome geriatrica

The Anorexia of Aging: Is It a Geriatric Syndrome?

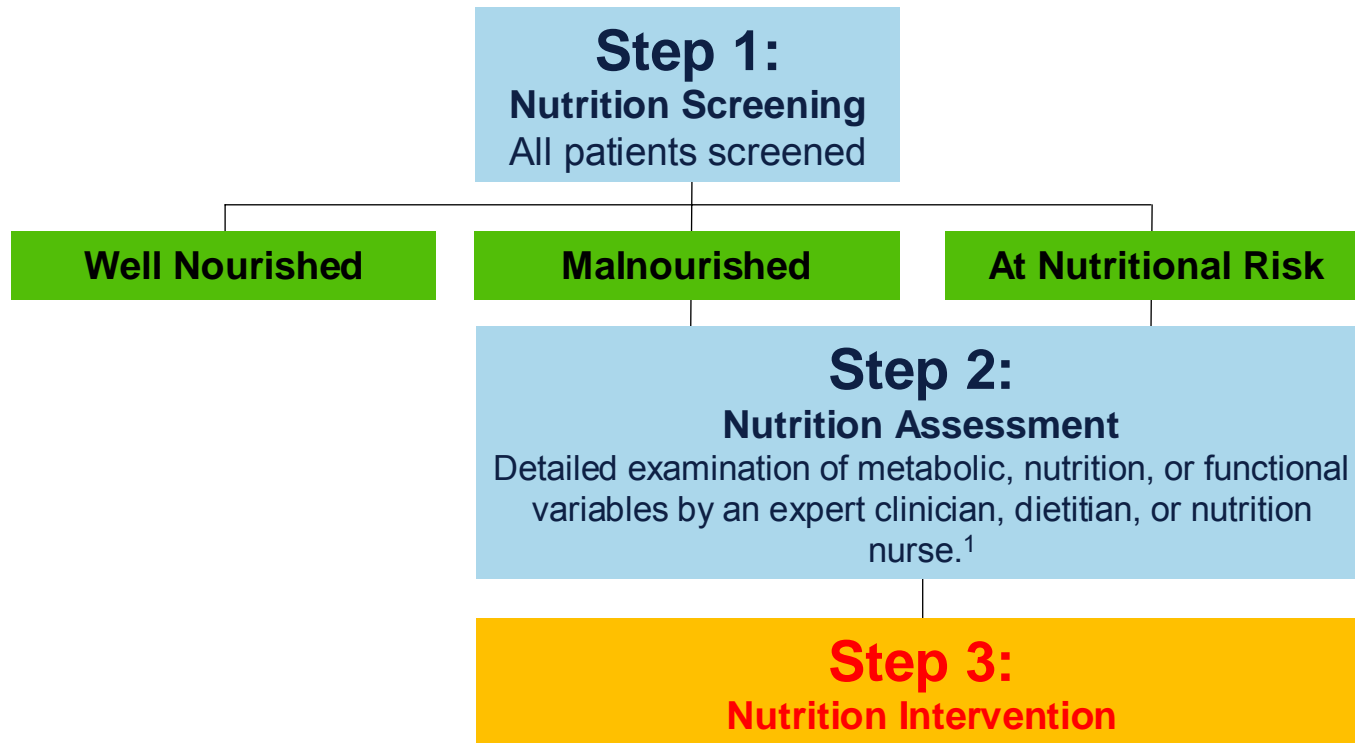
Francesco Landi, MD, PhD, Alessandro Laviano, MD, and Alfonso J. Cruz-Jentoft, MD



Landi F, et al. J Am Med Dir Assoc 2010; 11: 153-156. Editorial comment.



Valutazione stato nutrizionale



Step 3: Intervento nutrizionale

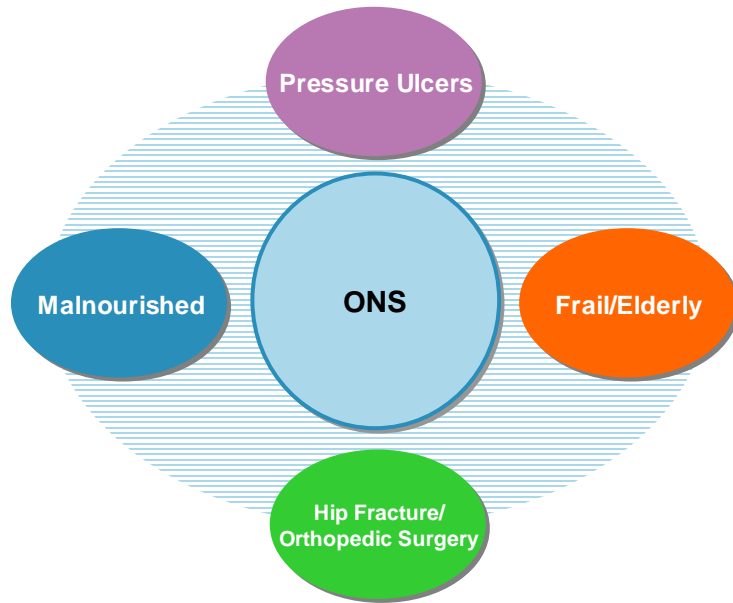
- ◆ Potential nutrition intervention strategies:
 - Alter diet prescription/diet order
 - Liberalize diet
 - Food fortification
 - Provide food/meal preferences
 - Recommend vitamin/mineral supplement
 - Oral Nutritional Supplements (ONS) -> enteral nutrition used as a supplement
 - Enteral Nutrition -> enteral nutrition used a sole source of nutrition
 - Parenteral Nutrition



ONS: Key populations

ESPEN guidelines on enteral nutrition

- ◆ ONS can increase energy and nutrient intake (Cochrane of 32 trials)¹
- ◆ ONS can maintain or improve nutritional status (ESPEN guidelines)²
- ◆ ONS can reduce morbidity and mortality (ESPEN guidelines)²
- ◆ ONS can improve function, activity, and capacity for rehabilitation (ESPEN guidelines)²
- ◆ ONS result in cost savings (BAPEN 2005 Report)³



1. Milne AC, et al. Cochrane Database Syst Rev. 2009.
2. Volkert D, et al. *Clin Nutr* 2006; 25: 330-360.
3. Elia M, et al. The cost of disease-related malnutrition in the UK and economic considerations for the use of oral nutritional supplements (ONS) in adults. 2005. Redditch, BAPEN.



La ridotta compliance è spesso una barriera alla supplementazione



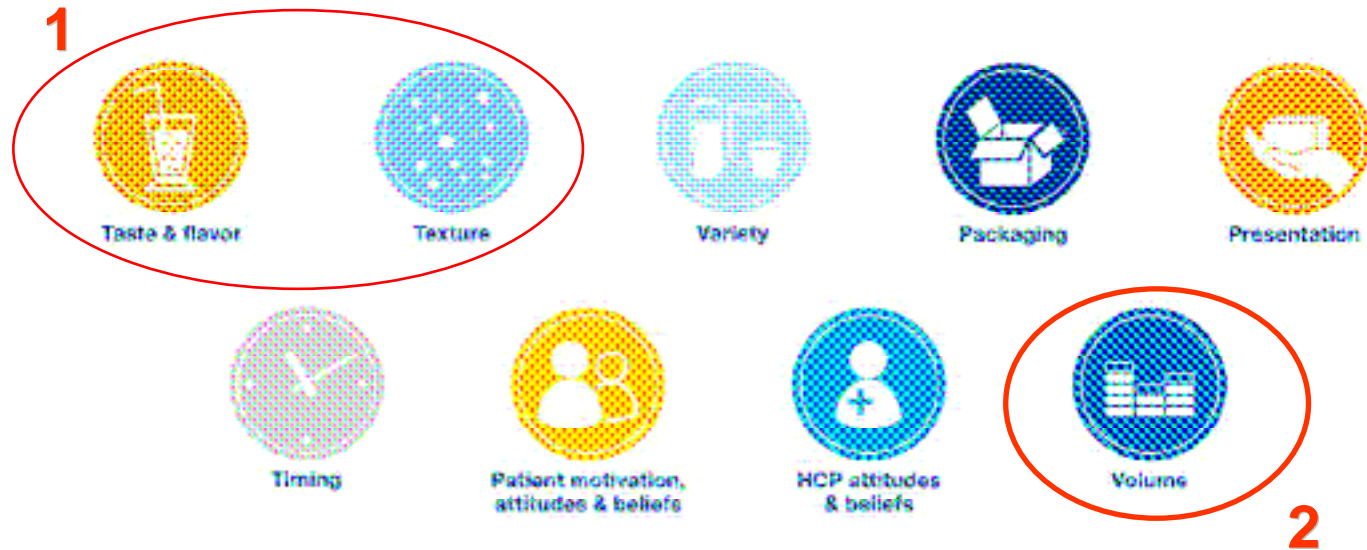
- ◆ Poor patient compliance with ONS is often a major barrier to achieving nutritional goals
 - Particularly for patients with severe illness, elderly patients and patients consuming ONS for long periods of time
- ◆ ~ 60% of patients do not comply with their prescription

1. Lad H, et al. *J Nutr Health Aging*. 2005;9: 310-314.
2. Cruz-Jentoft AJ, et al. *J Nutr Health Aging*. 2008; 12: 669-673.



La ridotta compliance a ONS è multifattoriale

- ◆ Compliance is impacted by many factors including:



1

Study to improve Understanding of Sensory factors and Taste And their Impact on compliance with Nutritional drinks (SUSTAIN)

- ◆ SUSTAIN is a blinded randomised study investigating sensory factors, taste and compliance in oral nutritional supplements (ONS)^{1,2}
- ◆ Participants consumed 2 bottles of ONS per day for 1 to 5 days reflective of a “real-world setting”^{1,2}
- ◆ Carried out in 2 stages
 - SUSTAIN 1
 - UK
 - SUSTAIN 2
 - Across 4 European countries (UK, Spain, the Netherlands and Czech Republic)

COMPLIANCE - GUSTO

1. Data on file, Abbott Laboratories Ltd, 2009. (SUSTAIN stage 1).

2. Data on file, Abbott Laboratories Ltd, 2009. (SUSTAIN stage 2).

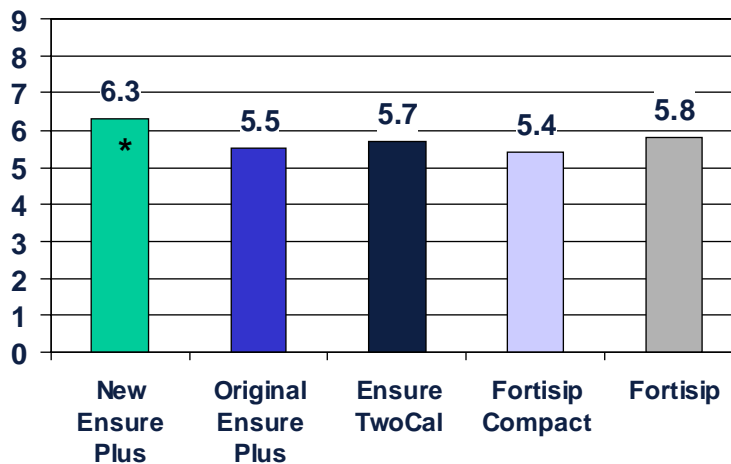


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SUSTAIN 1: Risultati

- ◆ Reformulated Ensure Plus scored significantly higher for taste compared with all other products tested ($p \leq 0.05$)

Overall opinion of taste (mean score)



* $p \leq 0.05$ when compared with other nutritional drinks

Taste was evaluated on a scale of 1 to 9 (1 = dislike extremely, 9 = like extremely)

■ Reformulated Ensure Plus
 ■ Original Ensure Plus
 ■ Ensure TwoCal
 ■ Fortisip Compact
 ■ Fortisip

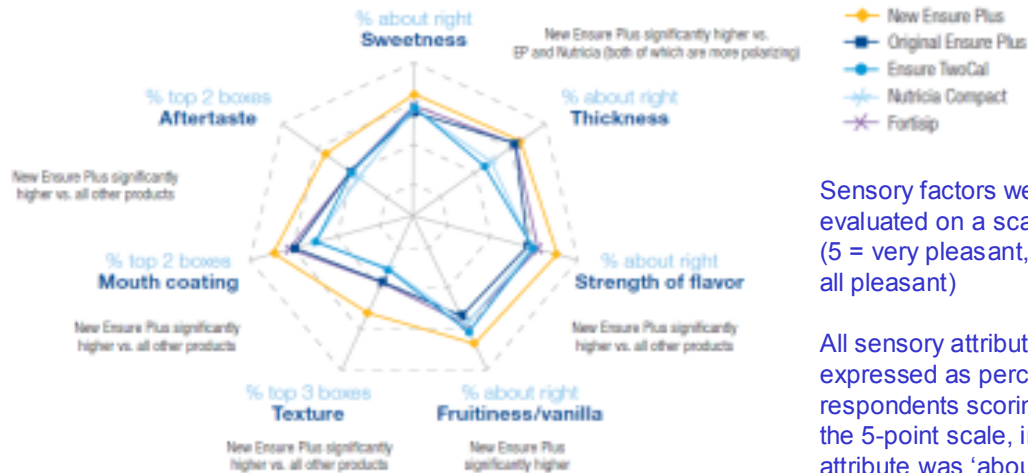


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SUSTAIN 1: Risultati

- ◆ Significantly more respondents scored Reformulated Ensure Plus 4 or more out of 5 for sweetness, strength of flavour, fruitiness/vanilla, texture, mouth coating and aftertaste, compared with other ONS tested

Summary of key product attributes



Sensory factors were evaluated on a scale of 1 to 5 (5 = very pleasant, 1 = not at all pleasant)

All sensory attributes expressed as percentage of respondents scoring 4 or 5 on the 5-point scale, indicating the attribute was 'about right'

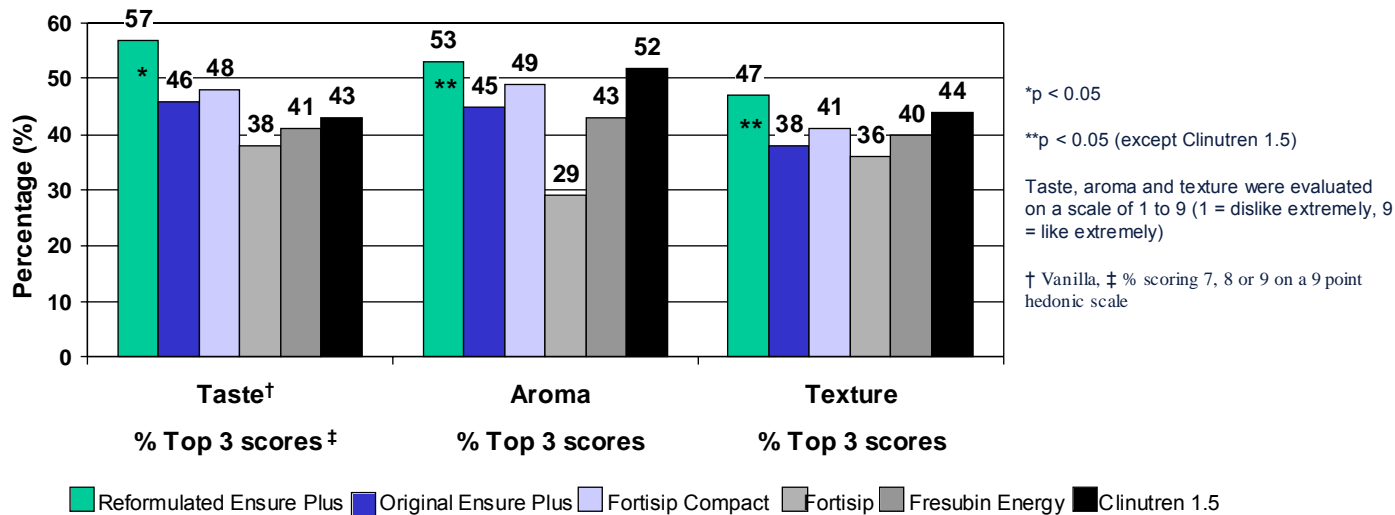


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SUSTAIN 2: Risultati

- ◆ Reformulated Ensure Plus scored higher for taste, aroma and texture compared with other ONS tested

Percentage of respondents scoring 7 or more out of 9 for key sensory attributes



Participants claimed they could drink 2.2 bottles per day (726kcal, 30.35g protein) of Reformulated Ensure Plus for an average of 13 weeks¹



Step 2

ONS = trattamento



=



**1/4 di 200ml
di ONS per
quattro
volte al
giorno**

COMPLIANCE - VOLUME



2

Nutrition MedPass - RSA

Step 1

Identificare i soggetti anziani a rischio di malnutrizione

Step 2

Basandosi sul rischio e sul "gusto", prescrivere ONS e somministrare ONS durante la distribuzione della terapia

Step 3

Valutare la compliance e monitorizzare i risultati (selezionare gli outcome)

