

## 授課講師學經歷

姓名	楊美都
課程名稱(主題)	消化系統疾病與延緩老化之探討: 老年人的消化系統疾病與外科手術
服務單位(包含職稱)	中國醫藥大學附設醫院臨床營養科主任及一般外科主任
學歷	台北醫學院醫學系醫學士, 中國醫藥大學醫學研究所碩士
經歷	<p>台中榮民總醫院外科部一般外科主治醫師</p> <p>中國醫藥大學附設醫院消化外科主任</p> <p>美國芝加哥大學醫學中心肝膽及移植外科研究員</p> <p>台灣抗老化保健學會常務理事</p> <p>台灣靜脈暨腸道營養醫學會理事</p> <p>台灣消化外科醫學會監事</p>

## 授課內容摘要

The portion of the population older than age 65 years is expected to grow continuously. The increase in number of older persons is going to stress the health care providers. Over the past decades, the percentage of operations in elder patients became increased. It is important for every surgeon to have a clear understanding of the factors that influence the life expectancy of his/her older patients when weighing the risks of operation against the benefits of survival time and quality of life.

With aging there is a decline in physiologic function in all organ systems, although the magnitude of it is variable among organs and individuals. Malnutrition is estimated to occur more frequently in the elderly patients. The impact of poor nutrition as a risk factor for pneumonia, poor wound healing, and other postoperative complications has long been appreciated.

The gastrointestinal tract undergoes characteristic changes with aging. There is a progressive decrease in amplitude of the primary peristaltic waves after deglutition. The incidence of sliding hiatal hernia is increased also. Accordingly, associated with delayed gastric emptying in elderly patients predispose to gastroesophageal reflux disease. The incidence of peptic ulcer disease and gastric cancer are also occurred frequently with aging and lead toward the need for more aggressive surgery.

Previous study showed that persons older than the age of 70 can underwent liver resection with acceptable morbidity and mortality in well-selected patients. Biliary tract disease is the single most common cause of acute abdominal complaints and accounts for approximately one third of all abdominal operations in the elderly. The prevalence of gallstones increases with increasing age. It is thought to result from both changes of bile composition and from impaired biliary motility.

The incidence of cancer of colon and rectum also increased with aging. It may accounts for two third of all gastrointestinal malignancies in patients older than age 70.

The overall outcome of surgery for the aforementioned disease in elderly patients is influenced in general by two factors: the presence of coexisting disease and the need for emergent operation. Early diagnosis and accurate treatment are mandatory for getting better quality of life in the elderly patient.



# Geriatric, Nutrition, and Gastrointestinal Surgery

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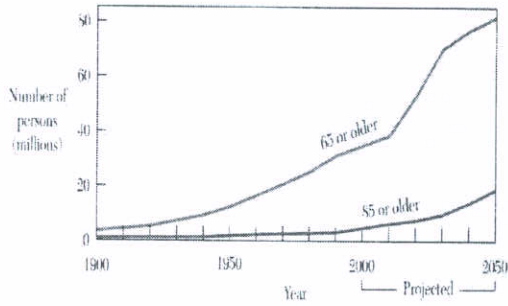
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The increase in the total numbers of persons age 65 and older and 85 and older. U.S. Census Bureau, Decennial Census Data and Population Project ([www.agingstats.gov](http://www.agingstats.gov))

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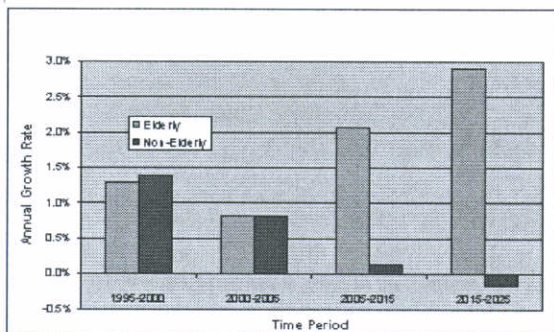
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## Population Growth (1995 to 2025)




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九十八年內政統計通報: 97年底人口結構分析

- 我國自82年起邁入高齡化社會以來，65歲以上老人所占比例持續攀升，97年底已達10.4%，雖仍較歐美及日本等已開發國家為低，但較其他亞洲國家為高。

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九十八年內政統計通報: 97年底人口結構分析: 老化指數

- 97年底我國老化指數為61.51%，雖較全世界之25.00%及開發中國家之14.71%為高，但遠較已開發國家之94.12%低。
- 與主要國家比較，較歐美及日本為低(美國65.00%、加拿大82.35%、英國88.89%、法國94.44%、德國135.71%、日本169.23%)。
- 比亞洲其他國家為高(中國42.11%、新加坡47.37%、南韓55.56%、馬來西亞12.50%、菲律賓11.43%)。

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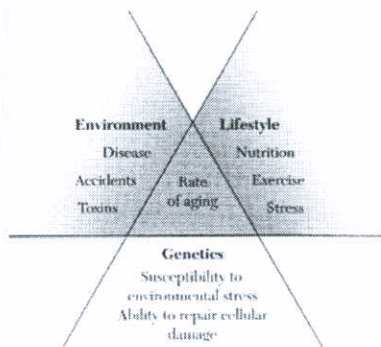
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The rate at which individuals age is affected by their genetic makeup, the environment in which they live, and the life style choice they make

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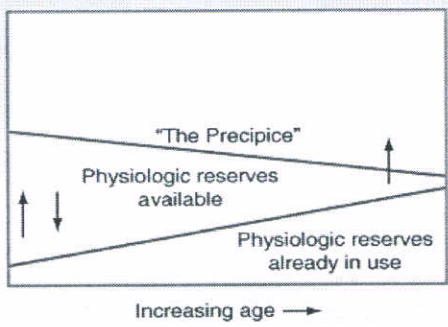
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With increasing age, physiologic reserves are increasingly utilized to maintain homeostasis. (Geriatric Medicine: An Evidence-Based Approach, 4th ed. New York, Springer, 2003.)

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- As the life expectancy increases, more elderly patients will be candidates for major surgical operations.
- Some studies have shown higher morbidity rate in older patients after gastrectomy.

*Journal of surgical research* 118, 15-20(2004)  
*Br.J.Cancer* 77:1774,1996  
*Aust.NZ.J.Surg* 70:254,2000  
*Hepato-gastroenterology* 45:268,1998

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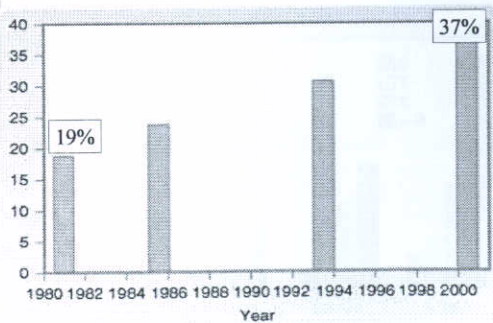
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Increase in the percent of operations in which the patient is over age 65. In 1980, 19% of operations in nonfederally funded hospitals were performed on patients older than age 65. This percentage has increased to 37% by 2000. When obstetrical procedures are excluded, this percentage rises to 43% (Data from CDC Advance Data No. 329, June 19, 2002.)

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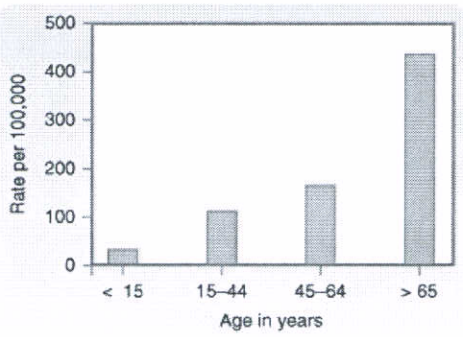
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Rate of operations per 100,000 persons, by age in year 2000.  
 (Data from CDC Advance Data No. 329, June 19, 2002.)

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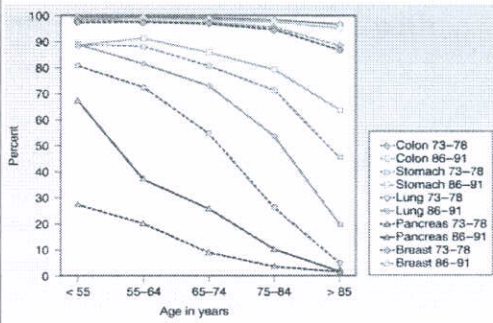
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Temporal variation in the percent of patients treated surgically for local stage cancer, as a function of age. For operations in which surgical risk is high or postoperative survival overall is low, the gap between younger and older patients has not narrowed significantly over time. (J Am Geriatr Soc 44:559-564, 1996.)

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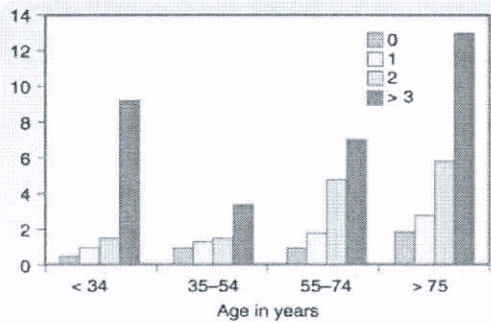
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Rate of perioperative events associated with age and the number of comorbid conditions 0, 1, 2, or more than 3.  
 (Tiret L, et al: Can Anaesth Soc J 33:336-344, 1986.)

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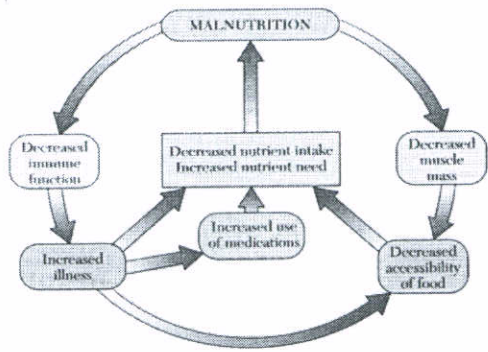
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The causes and consequences of malnutrition are linked

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### Malnutrition Is Associated with Increased Complications

- 42% of patients with severe malnutrition experience major complications
- 9% of patients with moderate malnutrition experience major complications
- Severely malnourished patients are four times as likely to have post-operative complications as well-nourished patients

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### Factors that Increase the Risk of Malnutrition Among the Elderly: Reduced food intake

- Appetite ↓ : exercise ↓ , depression, social isolation
- Change in taste, smell and vision
- Dental problem
- Limitation in mobility
- Medications that restrict meal times or affect appetite
- Lack of money to buy foods
- Lack of nutrition knowledge

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## Reduced nutrient absorption and utilization

- Gastrointestinal changes
- Diseases : DM, hypertension, renal disease, CVD, GI diseases, COPD, etc.
- Medications that affect absorption

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## Factors that Increase the Risk of Malnutrition Among the Elderly

- Increased requirements
  - Illness with fever or infection
  - Injury or surgery
- Increase losses
  - Medications that increase excretion of nutrient
  - Diseases :GI diseases, Kidney diseases

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## Commonly Used Drugs That May Cause Nutritional Deficiencies

Drug Group	Drug	Potential Deficiency
Antacids	Sodium bicarbonate Aluminum hydroxide	Folate, phosphorus, calcium, copper Phosphorus
Anticonvulsants	Phenytoin, phenobarbital, primidone Valproic acid	Vitamins D and K Carnitine
Antibiotics	Tetracycline Gentamicin	Calcium Potassium, magnesium
Antibacterial agents	Neomycin Boric acid Trimethoprim Isoniazid	Fat, nitrogen Riboflavin Folate Vitamins B <sub>6</sub> , D, and niacin
Anti-inflammatory agents	Sulfasalazine Prednisone Aspirin	Folate Calcium Vitamin C, folate, iron

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## Commonly Used Drugs That May Cause Nutritional Deficiencies

Anticancer drugs	Colchicine Methotrexate	Fat, vitamin B <sub>12</sub> Folate, calcium
Anticoagulant drugs	Warfarin	Vitamin K
Antihypertensive drugs	Hydralazine	Vitamin B <sub>6</sub>
Diuretics	Thiazides Furosemide	Potassium Potassium, calcium, magnesium
Hypocholesterolemic agents	Cholestyramine	Fat, fat-soluble vitamins, iron, folate, vitamin B <sub>12</sub>
Laxatives	Mineral oil Phenolphthalein Senna	Fat-soluble vitamins Potassium, calcium Fat, calcium, vitamin B <sub>6</sub> , folate, vitamin C
Tranquilizers	Chlorpromazine	Riboflavin

980419MDY

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## Parenteral Nutritional for Elderly Patients Undergoing Gastrointestinal Surgery. Is There A Difference in Benefits?

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- Retrospective review
- CMUH experience with parenteral nutrition
- Compared patients younger than 65 years old to elderly ones to see if there is any difference in nutrition index and early and long-term outcomes between the two groups.

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## Materials and Methods

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- All patients underwent gastrointestinal surgery in China Medical University Hospital from August 2002 to April 2007 were reviewed.
- A total of 644 patients underwent gastrointestinal surgery at CMUH.
- Among these, 296 were 65 years old or older and 348 were aged 64 years or younger.

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## Results

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### Patient characteristics

	Younger(<65yrs)	Elderly(>65yrs)
No.	348	296
Mean age (years)	48.8±11.2	74.9±5.9**
Gender (M:F)	211:137	186:110
PN duration	14.9±21.39	13.9±0.95
Height	163.1±8.1	159.5±8.4**
UBW	57.3±12.9	55.4±11.6
BMI	21.49±4.18	21.73±3.87
Kcal/kg/d	24.1±9.3	25.2±8.6
Protein/kg/d	0.8±0.3	0.8±0.2
reach of goal	66.8±23.1	78.3±23.6*

\*p<0.05 \*\*p<0.01

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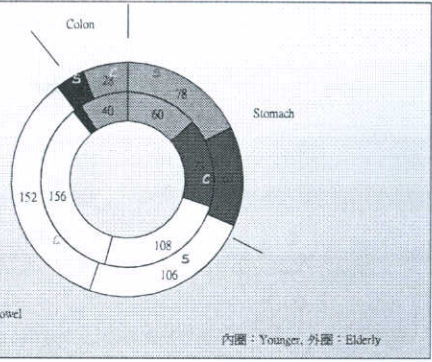
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### Effect of age on nutrition index during TPN

		Younger	Elderly	F	P value
Prealbumin	B	13.2±8.3	12.5±15.5	0.3	0.6
	M	16.1±8.0	12.2±5.1	8.8	0.002**
	A	16.6±9.4	13.1±6.0	8.8	0.003**
Transferrin	B	144.7±48.1	141.4±52.6	1.5	0.2
	M	150.2±50.8	138.6±39.7	5.9	0.017*
	A	154.2±52.0	143.7±50.4	7.8	0.005**
ALB	B	2.4±0.5	2.2±0.5	7.3	0.007**
	M	2.4±0.5	2.1±0.5	16.5	0.000**
	A	2.4±0.5	2.2±0.5	9.6	0.002**

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	Younger	Elderly
Length of hospital stay	36.29±27.83	43.27±57.76*
Mortality	5.15%	6.13%

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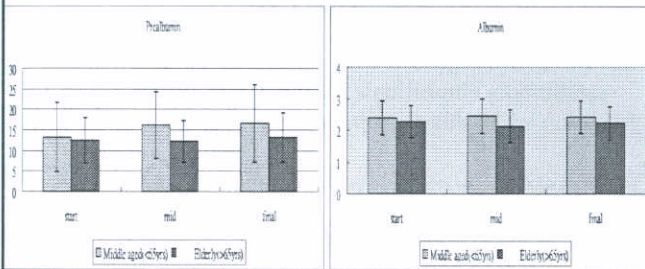
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The Albumin and prealbumin level and transferrin level in younger group and elderly group are scientifically different

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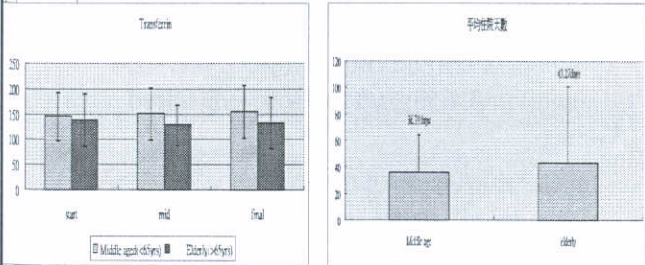
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A. The transferrin level in younger group and elderly group are scientifically different  
 B. The average length of hospitalization in elderly groups was 43.27±57.76 days and 36.29±27.83 days in the younger group, which was statistically significant. (p=0.04)

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## Results

	Younger	Elderly
Nutrition Index ( Mean difference)		
Albumin	0.02	-0.06
Prealbumin	3.4	0.63
Transferrin	9.54	2.35
Length of hospital stay	36.29±27.83	43.27±57.76*
Mortality	5.15%	6.13%

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## Discussion

- Poor nutritional status significantly contributes to morbidity and mortality in elderly.
- Malnutrition and denutrition are amenable to interventions aimed to improve outcomes in acute conditions so that nutritional support is frequently initiated during hospitalization.

*Acta clin bleg, 2006*

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## Discussion

- Enteral route remains the first evidence-based choice when the gut is functional
- EN may be difficult to perform in some "geriatric" situations like delirium, agitation, coma or pulmonary congestion.

*Acta clin bleg, 2006*

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## Conclusion

- Short- and long-term outcomes after gastrointestinal surgery for parenteral nutrition in patients older than 65 years are comparable with those of their younger counterparts
- Increased experience and refinements in nutrition support explain the better results of gastrointestinal surgery in elderly patients in recent years.

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## Acknowledgement

- 靜宜大學食品營養系  
王銘富教授  
詹吟菁教授  
林怡伶 林詩儀 陳英茹
- 中國醫藥大學附設醫院 臨床營養科  
劉碧雯 呂孟純 林國誠

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