Multimedia aided Education of Clinical Nutrition using WebPages

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1. Introduction

In Japan, the improvement in food habits of the people by dieticians (legislation in 1947) and registered dieticians (1962) have contributed to the presence of the longest longevity society in the world. The dietetics education program is designed to train highly qualified students who are able to extend their wide knowledge of the natural and social science of human nutrition to a group of people or individuals, and to provide nutritional care through diet to promote, maintain and recover their health and to improve quality of their life.

Furthermore, there is a need for providing information on nutrition management, meal planning and foods for the public especially for the elderly who are the most rapidly growing segment of the population in Japan. To meet the needs, it is expected to work in closer cooperation with the community and the university by developing dietetics education using multimedia, by gathering and disseminating nutrition information effectively and holding information resources in common, and by interactive education between universities, and distance learning.

2. The Curriculum

Table 1 shows the curriculum for administrative dieticians in Japan. The training programs are designed to provide each student with basics of dietetics education, advanced dietetics education, a working knowledge to cope with the needs of the professional fields, and a proficiency in advocating from dietetic point of view. The fields of study which are expected more development includes the course of Clinical Nutrition.

Table 2 are example of syllabus for Clinical Nutrition Practice education using computer technology and computer-based multimedia. According to the syllabus, we have developed WebPages for nutrition formula based on dietary slips, dietary compositions and the examples of menu in the famous hospital(Table 2 No 5).

Tab.1 Curriculum for administrative dieticians

	equired Courses	Credit
	eneral Education	At least 36 credits
	nysical Education	At least 4
	ne foreign language	At least 8
1		eture,
-	actices and fieldwork or laboratory	
	Physiology	At least 6
	Exercise Physiology	At least 2
	Pathology	At least 6
	Biochemistry	At least 6
	Microbiology	At least 2
	Food Science	At least 9
	Food Additives	At least 3
	Nutritional Science	At least 7
	Nutritional Guidance	At least 6
	Clinical Nutrition	At least 7
	Public Nutrition	At least 5
	Food Service Management	At least 4
	Food Stuffs Hygiene	At least 3
	Public Health Science	At least 4
	Outline of Health Management	At least 1
	Food Preparation	At least 5
	Economics of Food Stuffs	At least 2
	Principles of Diet	At least 1
Tab	.2 Syllabus for Clinical Nutrition I	Practice (2 credits)
No	Contents of Practice	Using computer-based multimedia
1	Introduction to Clinical Nutrition	Video and WebPages
2~3	Nutrition and diet assessment	Database and application software of
		nutrition calculation and guidance
4	Diet therapy and methods of alimentation	
5	Nutrition formula based on dietary slips and dietary compositions	Food composition database and WebPages

	15	
	alimentation	
5	Nutrition formula based on dietary	Food composition database and
-	slips and dietary compositions	WebPages
6	Survey of favorite foods	Application software of statistics
7	Nutrition Counseling for patients	Database of exchanging table
,	Such as diabetes mellitus	CAI software
8	Therapeutic diet practice (1)	Database of recipes and its image
-	Control by Softening	Internet WebPages
9	Therapeutic diet practice (2)	WebPages
0	Control by Nutrition Component	
10	Therapeutic diet practice (3)	Database of recipes and its image
. .		and Internet WebDerer

nage Therapeutic diet practice (3) Weaning food, food for infant and Internet WebPages

11~14	Development the aids of nutrition	The various tool of development
15	guidance	(Digital camera, Video, C.G.software)
	Presentation and discussion	Presentation software

3. Constitution of WebPages

The WebPages consists of 4 parts, (1) dietary slips,(2) nutrients requirement of each dietary slip,(3) dietary compositions,(4) the meal image attached to the menu table (Figure $1 \sim 3$).

4.Result

By using this educational material, students can understand how to select the dietary slip and its meal menu visually.



fig.1. WebPage of Menu Table

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事業分類詳細	•	2.基本:			<u>u</u> ,	ister					
た 健康による分類 1. <u>基本食</u> 2. 特別指示		食種(成 分栄養)	基本食	基本食	じょく婦 食	食塩制限 食7e	食塩制限 食7e	食塩制限 食5g	食塩制限 食5g	妊娠後半 期食	妊娠後半 期食
2. 張別指示		Iネルキー kcal ト部	2000	1800	2400	2000	1800	2000	1800	2400	2200
「「こよる分類」		蛋白質g 下限	-	-	-	-	-	-	-	-	-
1. <u>基本會</u> 2. <u>参消化形態別</u>		蛋白質& 上限	80	75	100	80	75	80	75	100	85
3. 经口法的度 4. 经管策者		脂質6 下誤	55	45	70	55	45	55	45	70	50
		胎質e 上襟	-	-	-	-	-	-	-	-	-
対象による分類		糖質e 下誤	290	270	340	290	270	290	270	340	350
1. <u>成人用</u> 2. <u>小児用</u>		結質e 上限	-	-	-	-	-	-	-	-	-
目的による分類		水分ml 下隈	1200	1200	1600	1200	1200	1200	1200	1500	1400
1. 治療食 2. 嗜好食·特別		水分ml 上陽	-	-	ł.	ŀ	ŀ	ŀ	ŀ	ŀ	-

Fig.2. WebPage of nutrients requirement.

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	場所 file//								-	(の) 関連サ
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◎事箋分類詳細 ▲	3.基本1	敻(食	品構	成)						
<u>食優による分類</u>	食種(成 分栄養)	基本食	基本食	じょく婦 食	食塩制限 食7g	食塩制限 食7e	食塩制限 食5g	食塩利限 食5g	妊娠後半 期食	妊娠後半期 食
 基本食 5. 時別指示 	较類e	350	290	350	350	290	350	290	350	350
	苹+果実ε	150	80	150	150	80	150	80	150	150
	魚介の	70	80	70	70	80	70	80	70	70
<u>影響による分類</u>	肉類。	100	60	100	100	60	100	60	100	100
1. 基本食	Afte	50	50	50	50	50	50	50	50	50
2. 新油化形服制	大豆製品。	30	60	30	30	60	30	60	30	30
3. 経口法動食	牛乳cc	200	200	200	200	200	200	200	200	200
4. 经管宗查	油脂を	25	15	25	25	15	25	15	25	25
	綠黄色野 菜 下限g	70	70	70	70	70	70	70	70	70
1. <u>成人用</u> 2. <u>小児用</u>	缘黄色野 菜 上限e	100	100	100	100	100	100	100	100	100
. 目的による分類	その他野 菜 下限e	200	200	200	200	200	200	200	200	200
	その他野	250	250	250	250	250	250	250	250	250

Fig.3. WebPage of dietary compositions