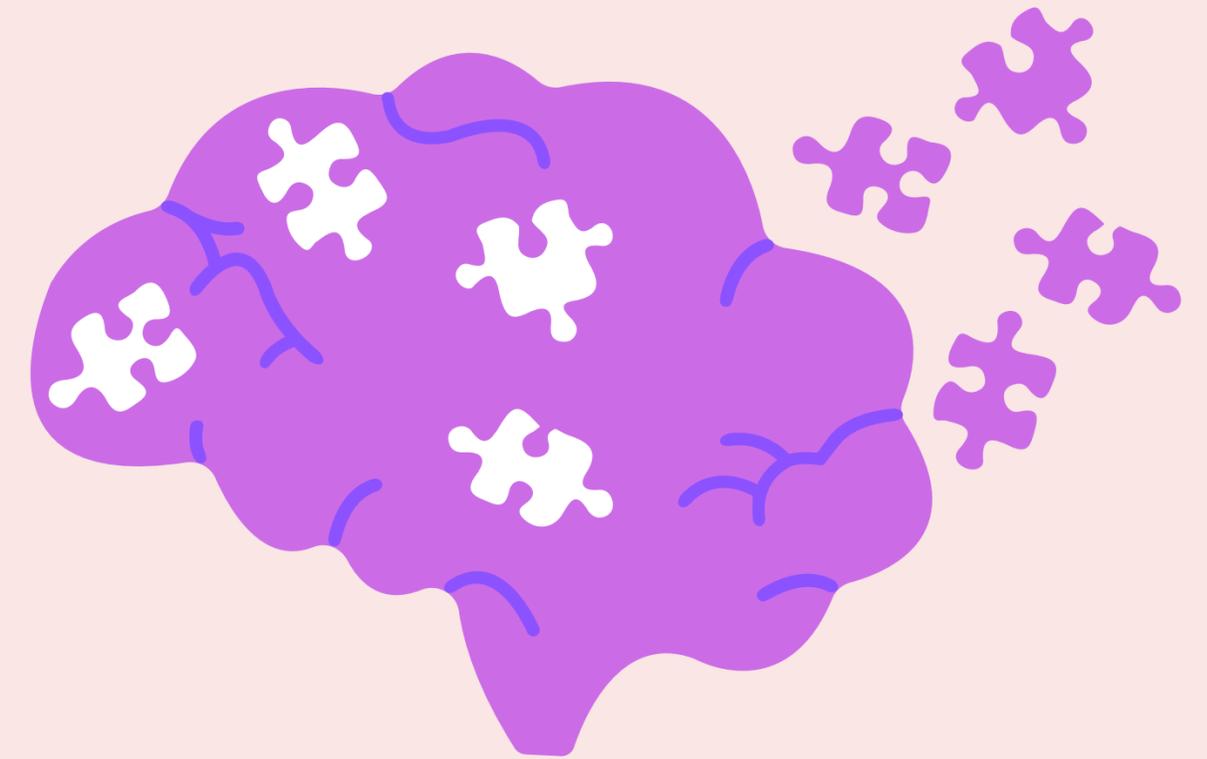
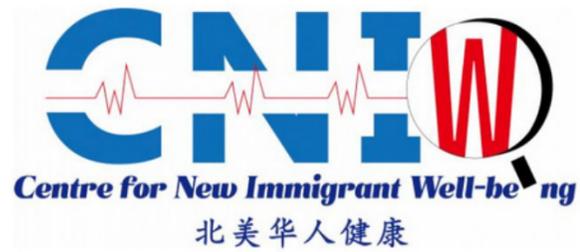




# 营养与大脑 健康

2024.09.24





# 北美华人健康协会(CNIW)

- **加拿大正式注册的非盈利慈善机构**
- **主要功能板块包括：社区服务教育、国际医学科研与教学交流、及医学科普。**
- **致力于发表优质的医学科普文章，帮公众提升对健康知识的认知。**
- **几十位来自加拿大、美国及中国知名大学或医疗机构教授及医学科研人员组成的健康专家队伍**



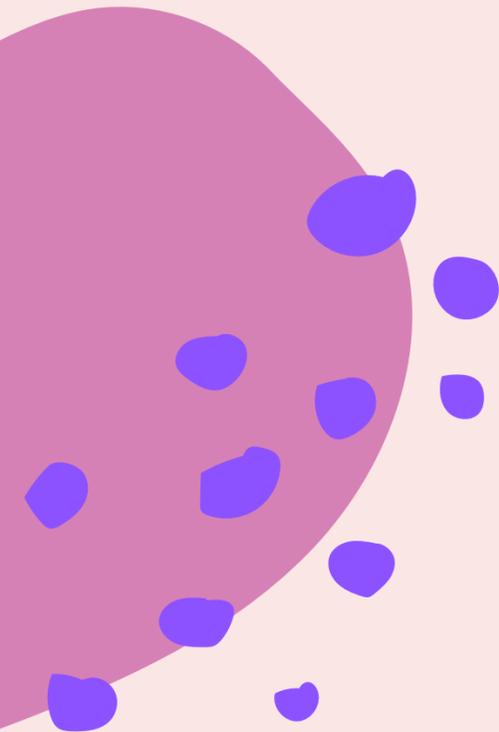
王业  
Flora Wang, PhD

University of Alberta  
营养与代谢博士

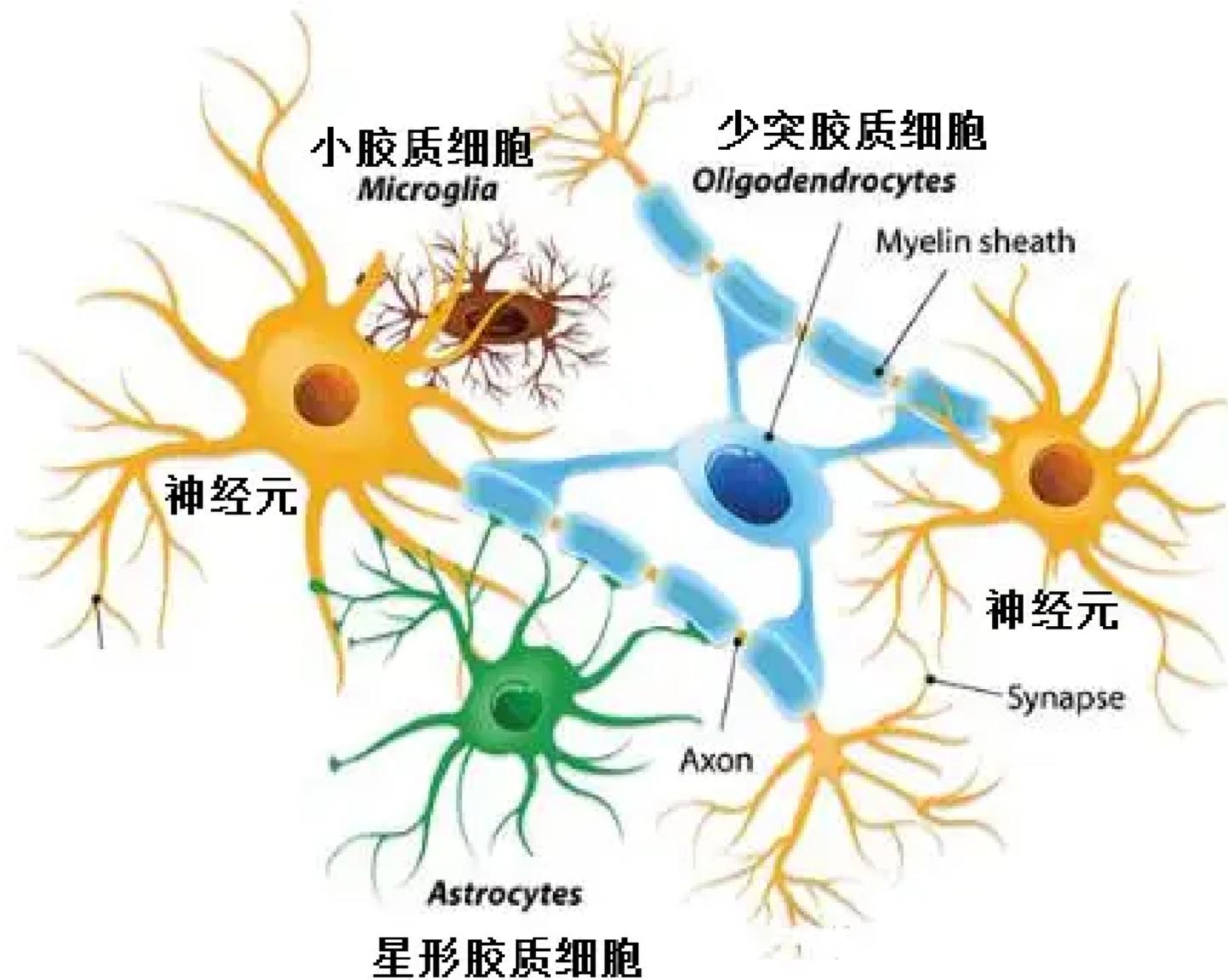
Canadian Nutrition Society  
加拿大营养学会会员

Canadian Foundation for Dietetic Research  
加拿大营养膳食研究基金会董事



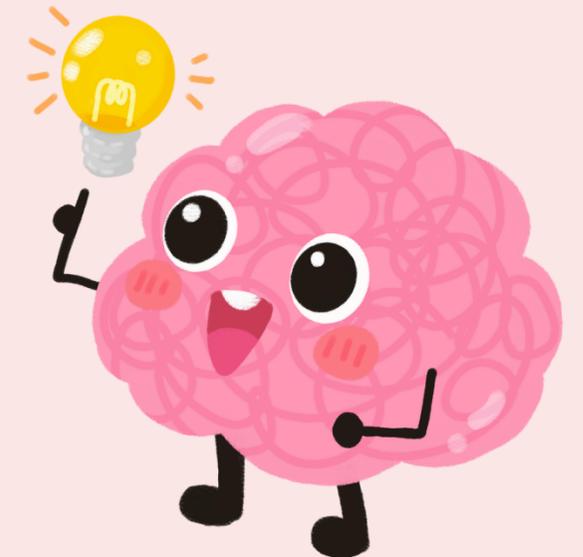
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- **本次讲座旨在提供与营养健康相关的科普信息，内容仅供参考，不构成医疗建议、诊断或治疗方案。如果您有任何健康问题或正在接受治疗，请咨询专业的医疗人员或注册营养师（Registered Dietitian）。**
  - **讲座中提及的建议可能因个人体质、健康状况或其他特殊情况而有所不同，建议在实施任何饮食或健康改变前，与您的医生或其他专业人士沟通。**

# 脑细胞：神经元+胶质细胞



**神经元：负责传递信息和指令给身体各个部分**

**胶质细胞：负责修复损坏的地方、提供养分、清除垃圾，确保神经元能够顺畅工作**



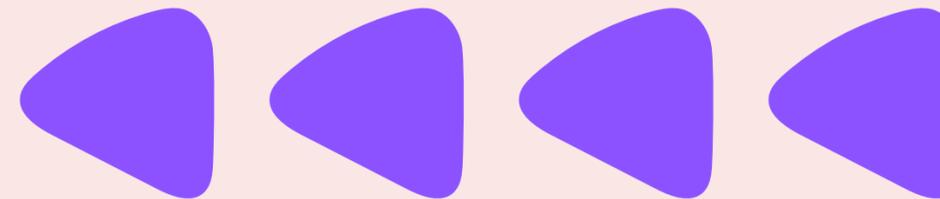
# 大脑的组成及营养需求

- **成年人大脑的重量占体重的2%**
  - **大脑75%的重量是水**
  - **干重的60%是脂肪(磷脂, 胆固醇等)**
  - **剩下的是蛋白质+碳水化合物+维生素+矿物质**
  - **大脑的能量来源: 葡萄糖(主) + 酮体(辅)**
    - **大脑消耗人体葡萄糖供能量的20%**



# 什么是失智症 Dementia

- **定义：** 是一种与记忆功能相关的障碍，表现为部分或全部丧失记忆能力。分为短期记忆障碍，长期记忆障碍，顺行性健忘，和逆行性健忘。
- **加拿大目前有超过 50 万人患有失智症，其中 56,000 人正在医院接受护理。**
- **诱因：** 年龄，家族史，性别，基因遗传等



# 失智症的12大可干预的诱因

## 《柳叶刀》委员会 2020 年失智症的预防、干预和护理报告

早年

教育

中年

高血压

肥胖

听力损失

创伤性脑损伤

酗酒

晚年

吸烟

抑郁

缺乏运动

社会孤立

糖尿病

空气污染

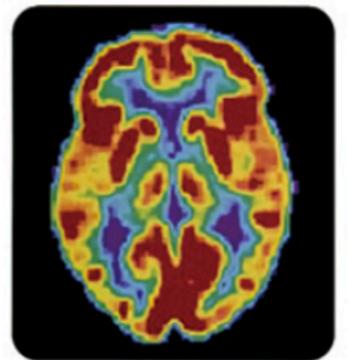
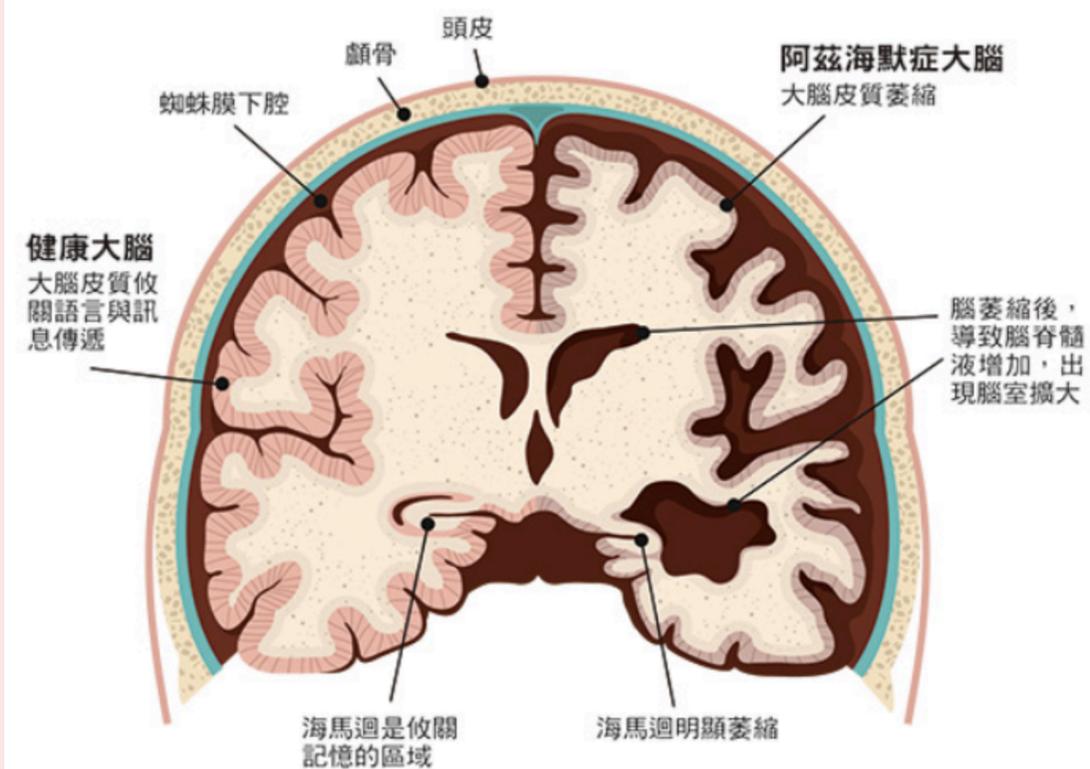


# 什么是阿尔茨海默病

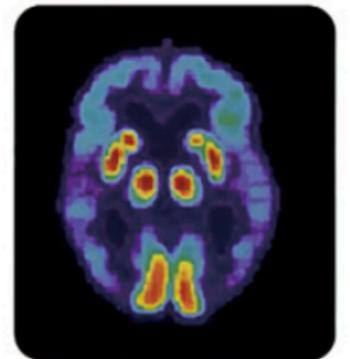
## Alzheimer's disease (AD)

- **最常见**的一种失智症
- 大脑的记忆、思维和行为功能逐渐丧失
- 病程通常是**慢性**和**渐进**的
- 阿尔茨海默病患者中女性大约占三分之二

健康大腦與阿茲海默症大腦的對照



在正子顯影下，健康的大腦（上）與阿茲海默患者大腦（下）的比對。



# 阿尔茨海默病的主要症状

1. 记忆力减退
2. 思维和判断能力下降
3. 语言障碍-可能会出现词汇丧失或语言表达困难
4. 空间感知和视觉障碍
5. 性格和行为改变
6. 失去时间感
7. 执行功能障碍



# 阿尔茨海默病的发病机理

## 1. $\beta$ -淀粉样蛋白 ( $\beta$ -amyloid, $A\beta$ )

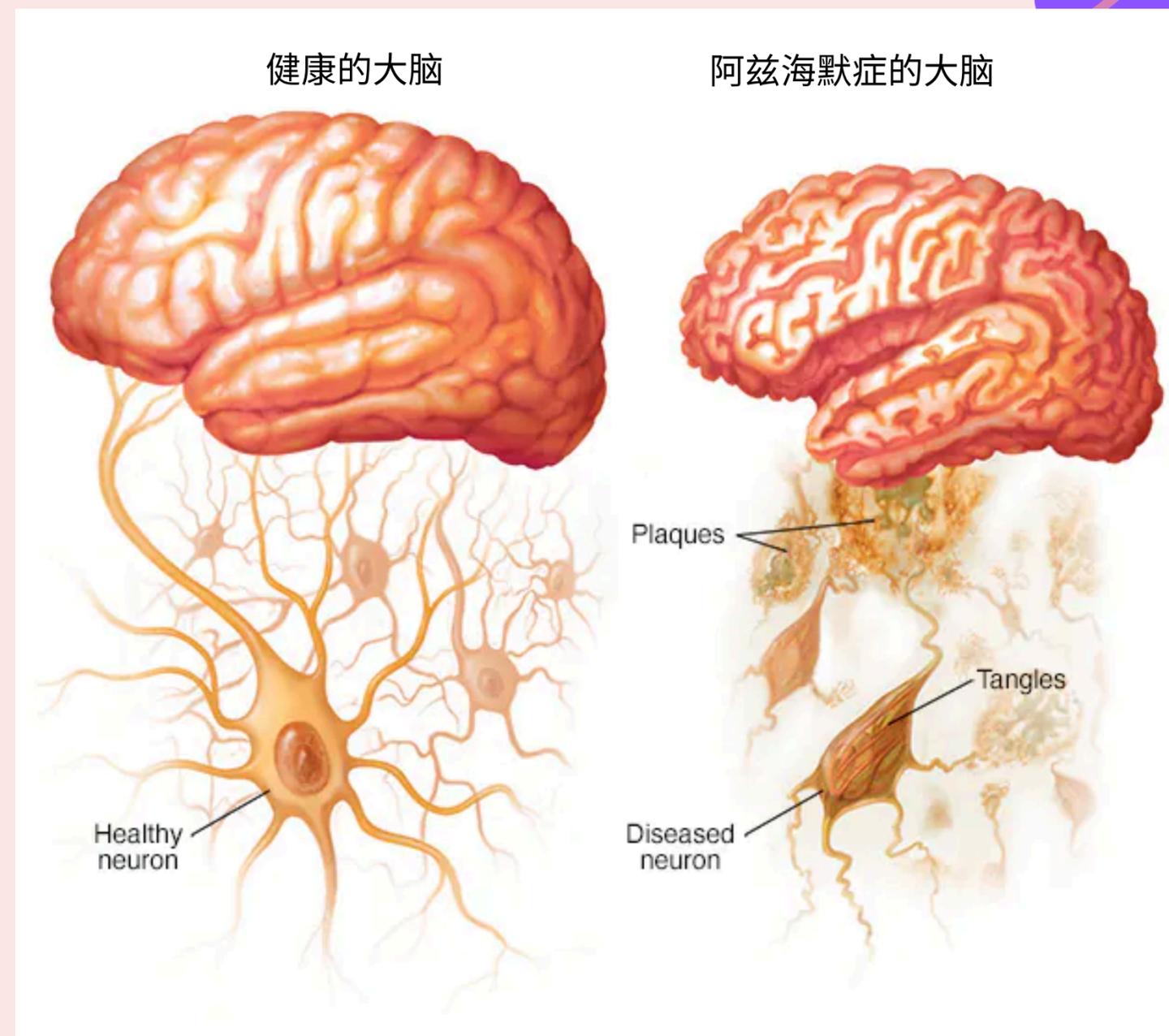
沉积形成的老年斑

## 2. tau蛋白异常磷酸化形成的细胞内

神经元纤维缠结

(neurofibrillary tangles, NFTs)

## 3. 神经炎症



# 阿兹海默症与糖尿病的关系 (III型糖尿病)

1. 胰岛素抵抗：大脑不能有效利用葡萄糖
2. 高血糖对大脑的损伤：加剧 $\beta$ -淀粉样蛋白的积聚和tau蛋白的异常磷酸化
3. 慢性炎症与氧化应激：促进 $\beta$ -淀粉样蛋白的沉积和神经原纤维缠结的形成
4. 胰岛素对神经元的保护受阻



# 阿兹海默症的预防与脑功能的维持

减少脑神经生理性的损伤  
(淀粉样蛋白, 神经原纤维  
缠结, 炎症)

提高和维护认知力的储备

控制糖尿病  
治疗高血压  
防止头部受伤  
戒烟  
减轻空气污染  
控制中年肥胖

有规律的运动  
减少抑郁的发生  
避免过度饮酒

治疗听力障碍  
维持频繁的社交  
提供教育程度

# 如何满足大脑的营养需求-1

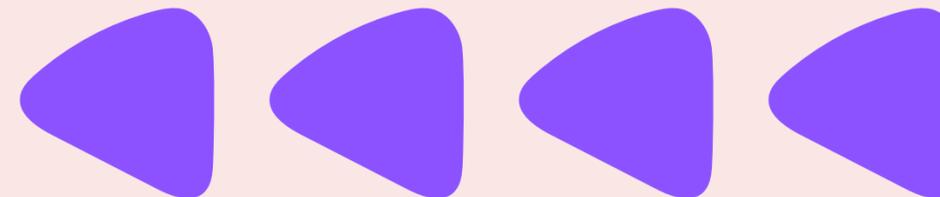
- 1. 能量：大脑首选的燃料是葡萄糖，我们从含碳水化合物的食物中获取葡萄糖（主要来自谷物、水果、蔬菜、牛奶、酸奶和豆类）。**
- 2. 稳定的血糖水平：保持持续的能量，减少情绪波动，并预防烦躁和焦虑感：优质碳水化合物、蛋白质和健康脂肪的均衡饮食**
- 3. 神经递质的生成：氨基酸、维生素和矿物质是合成神经递质（如血清素、多巴胺和去甲肾上腺素）所必需的营养素。**

# 大脑的营养需求-DHA



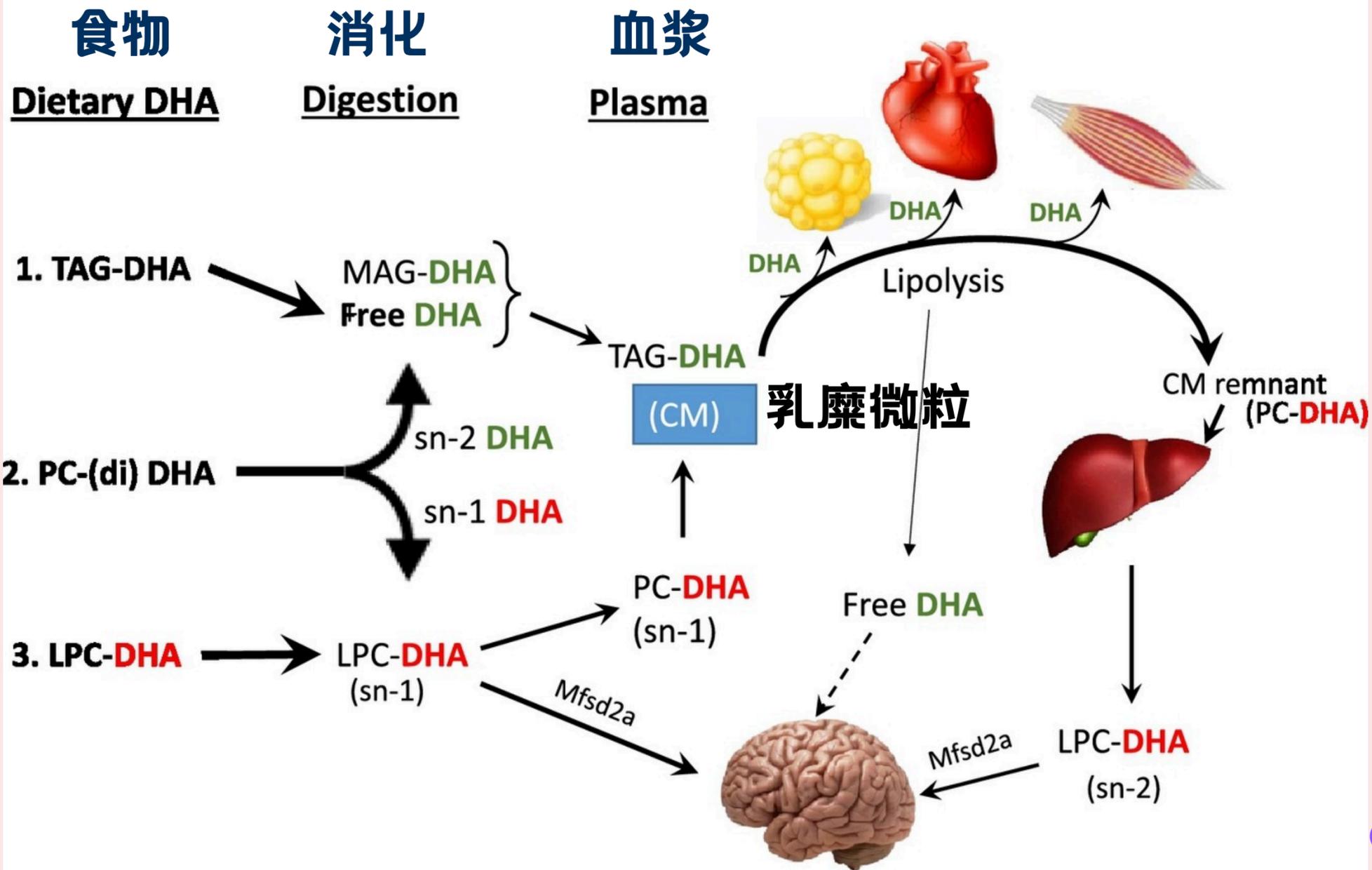
4. DHA (二十二碳六烯酸) 是大脑中含量最丰富的 Omega-3 脂肪酸。

- 维持大脑细胞的结构和功能，细胞膜的构成
- 支持神经元之间的信号传递，参与大脑的认知功能、记忆力和情绪调节
- 在婴幼儿的大脑发育阶段，DHA 对于神经系统的正常发育非常重要
- 对于成年人，充足的 DHA 摄入有助于维持大脑健康并预防认知功能的衰退



# DHA的来源与去向

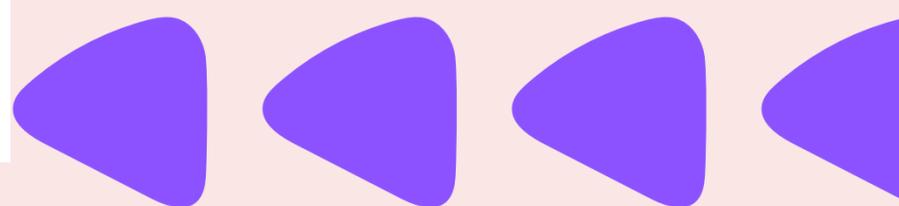
## Metabolic fates of dietary DHA carriers



甘油三酯

磷脂胆碱

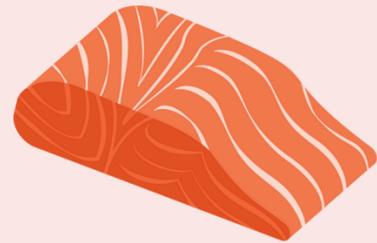
溶血磷脂胆碱



# DHA的主要膳食来源

推荐摄入量：每天500毫克 DHA+EPA

## 鱼类和海鲜



Salmon, Trout, Mackerel, Halibut  
鲑鱼、鳟鱼、鲭鱼、比目鱼

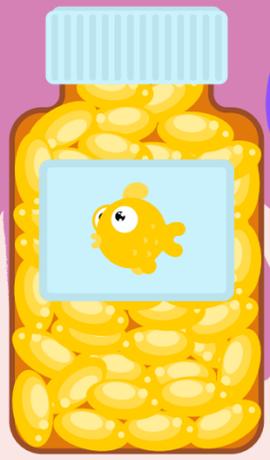
\*每75克煮熟的鱼肉含有800-1500 毫克 DHA+EPA  
每周推荐食用至少150克鱼(5oz)

## 蛋黄



100 毫克/个





# DHA补充剂Supplements的选择

	OMEGA-3种类	存在形式	特点
鱼油 fish oil	DHA, EPA	甘油三酯	有“鱼腥味”
磷虾油 krill oil	DHA, EPA	磷脂	少“鱼腥味”，吸收率高，虾青素抗氧化
海豹油 seal oil	DHA, DPA, EPA	甘油三酯	DPA增强EPA和DHA的作用，但含量较低
海藻油 algae oil	DHA	甘油三酯	“素食”



# DHA补充剂Supplements的选择

## 成分表

### 保健品批文号

NPN 25685-0100-01

## OMEGA-3 FISH OIL

300 mg EPA

200 mg DHA

### FORMULA

100 Softgels

DIETARY  
SUPPLEMENT

Supplement Facts		
Serving Size: 1 Softgel	Servings Per Container: 100	
	Amount Per Serving	% Daily Value
Calories	10	
Calories from Fat	10	
Total Fat	1 g	1%†
Fish oil Concentrate	1000 mg	††
Eicosapentaenoic Acid (EPA)	300 mg	†
Docosahexaenoic Acid (DHA)	200 mg	††

†Percent Daily Values are based on a 2000 calorie diet.  
††Daily Value not established.



**OTHER INGREDIENTS:** Gelatin, Glycerin, Purified Water, Vitamin E (mixed tocopherols).

**CONTAINS:** Fish (anchovies, mackerel, sardines).

**Directions:** Take one Softgel daily or as recommended by a physician.

**WARNING:** If you are pregnant, nursing, taking any medication, or have any medical condition, consult your doctor before use. Discontinue use and consult your doctor if any adverse reaction occur.

- Keep out of reach of children.
- Store at 15-30°C (59-86°F).
- Protect from heat, light and moisture.
- Do not purchase if seal is broken.

Manufactured by:  
PROCAPS S.A.  
Distributed by:  
REGIMED MEDICAL

抗氧化

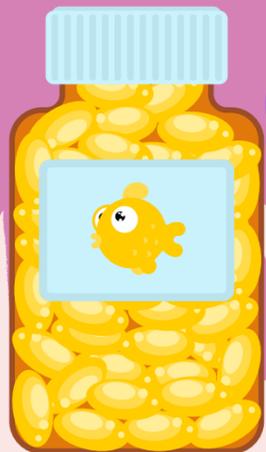
服用说明

B21120701

LOT:

EXP:

有效期

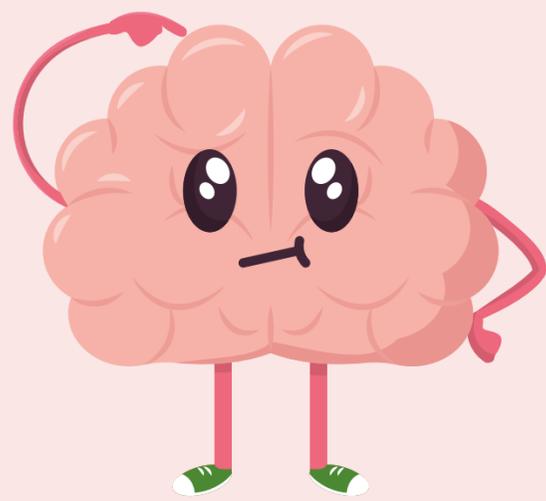


# DHA补充剂Supplements的选择

## Each clear enteric softgel contains:

Fish Oil Concentrate* (anchovy, sardine and/or mackerel).....	1425 mg
Omega-3 Fatty Acids .....	900 mg
Providing:	
Eicosapentaenoic Acid (EPA) .....	600 mg
Docosahexaenoic Acid (DHA) .....	300 mg

\*Molecularly distilled, ultra purified.



**Recommended purpose:** Supports cardiovascular health and brain function, reduces serum triglycerides/triacylglycerols and promotes healthy mood balance. In conjunction with conventional therapy, helps reduce the pain caused by rheumatoid arthritis in adults. Source of omega-3 fatty acids for the maintenance of good health.

**Recommended dosage (adults):** 1 clear enteric softgel daily or as directed by a physician. **Reduce triglycerides & mood balance:** 2 clear enteric softgels daily or as directed by a physician. **Rheumatoid arthritis support:** 4 clear enteric softgels daily or as directed by a physician. Keep out of reach of children.

使用功效

服用说明



# DHA补充剂Supplements的选择



**Directions - Adults:** Take 1 softgel daily with a meal for the maintenance of good health. This blend of salmon & fish oil provides Omega-3 Essential Fatty Acids to support cardiovascular and cognitive health. Store between 15°C and 25°C, away from children.

**Posologie - Adultes :** Prendre 1 gélule par jour au repas pour le maintien d'une bonne santé. Ce mélange d'huiles de saumon et de poisson procure des acides gras essentiels oméga-3 pour favoriser la santé cardiovasculaire et cognitive. Conserver entre 15 °C et 25 °C, hors de la portée des enfants.

#### Each softgel contains:

Molecularly distilled Salmon & Fish Oil Complex . . . . . 1,000 mg  
(Salmon and Menhaden)

Providing 300 mg of omega-3 fatty acids in the natural bioactive triglyceride (TG) form, including:

Eicosapentaenoic Acid (EPA) . . . . .100 mg

Docosahexaenoic Acid (DHA) . . . . .100 mg

Pharmaceutically tested and free from heavy metals, PCBs, dioxins, mercury and lead. / Testé selon des normes pharmaceutiques et exempt de métaux lourds, PCB, dioxines, mercure et plomb.



# DHA补充剂Supplements的选择

选哪个？

HEART AND MIND

## Omega-3 Fish Oils

300 mg EPA/DHA

**1000 mg**  
Cardiovascular Health  
and Brain Function

**NO** (I.V.O. logo)  
180 ~~210~~ Softgels

**BONUS 15% MORE**

HEART AND MIND

*Triple Strength*

## Omega-3

EPA/DHA

**900 mg** (circled in red)

**One Per Day**  
Pharmaceutical Grade

**NO** (I.V.O. logo)

80 Softgels - Unique *clear* enteric  
technology guarantees no fishy aftertaste

HEART AND MIND

*Easy Swallow Mini*

## Omega-3

EPA/DHA

**300 mg**

**NO** (I.V.O. logo)  
50%  
Smaller

180 Softgels - Unique *clear* enteric  
technology guarantees no fishy aftertaste



# 哪些人不适合吃鱼油/DHA补充剂



- 对鱼类或贝类过敏的人
- 服用抗凝药物的人
- 有出血性疾病的人
- 即将进行手术的人
- 患有肝病的人
- 孕妇或哺乳期女性（注意重金属\*）

**考虑服用鱼油补充剂的人，尤其是有健康状况或正在服用药物的人，最好先咨询专业的医疗人员。**

# 如何满足大脑的营养需求-3

**5. 微量营养素：**对于神经系统的功能非常重要，并且有助于管理压力和焦虑。

**1) B族维生素（包括B6、B12和叶酸）：**全谷物、瘦肉、豆类和绿叶蔬菜。

**2) 维生素D：**脂肪高的鱼、强化乳制品和补充剂

**3) 维生素C：**水果和蔬菜，特别是柑橘类水果、猕猴桃、西红柿、白土豆、浆果和甜椒。



# 如何满足大脑的营养需求-4

**5. 微量营养素：**对于神经系统的功能非常重要，并且有助于管理压力和焦虑。

4) 镁：坚果、种子、全谷物和深绿色蔬菜。

5) 锌：瘦肉（如牛肉、羊肉和猪肉）、坚果、种子和全谷物。

6) 铁：瘦肉、禽肉、鱼类、豆类和绿叶蔬菜。



# 如何满足大脑的营养需求-5

6. 肠道菌群的健康：富含膳食纤维的饮食（如全谷物、水果和蔬菜）支持健康的肠道微生物群，有助于通过肠脑连接(gut-brain axis)改善代谢，情绪和心理健康。

7. 水分摄入：脱水会影响认知功能、情绪和注意力。建议每天饮用相当于约2升（8杯）的水。

8. 正念饮食与减压：全神贯注于进食过程，可以减少压力并促进与食物的积极关系，避免干扰，享受食物的美味。



# 加拿大大脑健康饮食指南

CCNV: Canadian Consortium on Neurodegeneration and Aging

## BRAIN HEALTH FOOD GUIDE



### Eating well for your brain health means:



- Including a **variety** of healthy foods in moderation
- Focusing on overall **pattern** of healthy eating, not one specific "superfood"
- Eating until you're **comfortably full** and not stuffed
- Enjoying lots of **fruits and vegetables** including berries and leafy greens (lettuce, kale, and spinach). Frozen fruits and vegetables are an equally good option



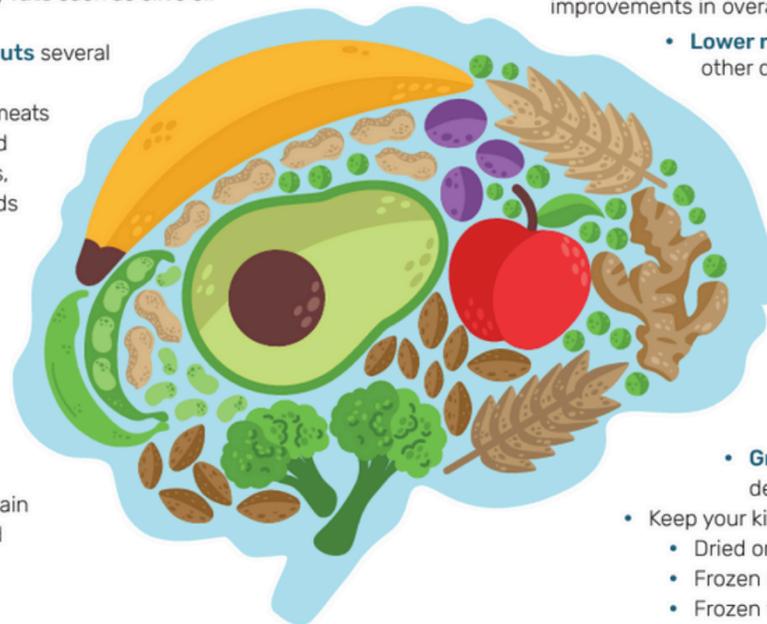
- Including foods with **healthy fats** such as olive oil daily
- Choosing **fish, beans, and nuts** several times a week



- **Limiting** red and processed meats
- **Limiting** foods high in added sugar and salt such as cakes, cookies, ice cream, fried foods, chips, frozen dinners, and canned soups



- Choosing dairy products such as milk and yogurt that are **low in fat**. For example, choose skim milk instead of whole milk
- Selecting **whole grains** over refined grains. For example, choose multigrain bread instead of white bread



An Evidence-Based Approach to Healthy Eating for the Aging Brain

### Simple diet changes have a powerful effect on brain health

#### What's good for the body is also good for the brain.

The Brain Health Food Guide is similar to the eating plans that are recommended to treat other conditions such as heart disease, diabetes, high cholesterol, and high blood pressure.

Studies show that eating a healthy diet is associated with:

- **Better memory abilities**<sup>1,2</sup>, thinking speed<sup>1,3</sup>, and improvements in overall brain functioning<sup>4</sup>
- **Lower risk of Alzheimer's disease** and other dementias<sup>5</sup>



### Tips & Tricks

The Brain Health Food Guide includes a variety of healthy foods that supply your brain with the nutrients it needs to function best.

- **Choose colour.** Eat a colourful assortment of fruits and vegetables at each meal
- **Grill, steam, or bake** foods instead of deep frying
- Keep your kitchen stocked with:
  - Dried or canned **beans**
  - Frozen or canned **fish**
  - Frozen **vegetables** and **fruits**
- Add **beans** or **legumes** to soups, stews, salads, and stir-fries
- **Snack smart.** Choose nuts, fresh fruits, chopped vegetables, and low-fat yogurt
- **Keep hydrated.** Drink water or other unsweetened drinks



## CCNV:

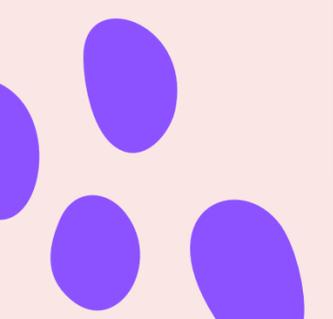
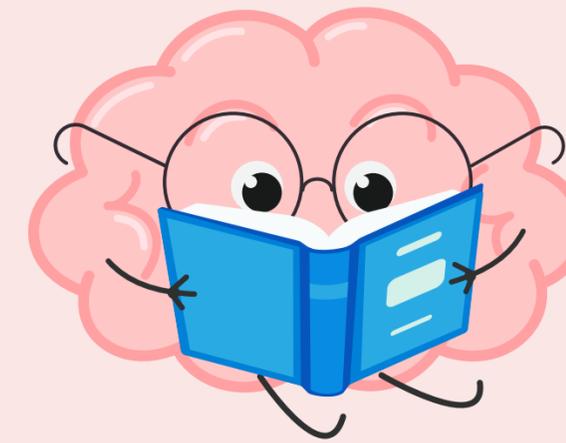
- 2014年联邦政府主持建立的科研和教育机构
  - 大脑衰退的机理
  - 疾病的延缓和治疗

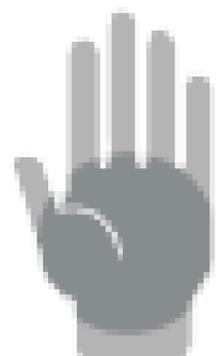


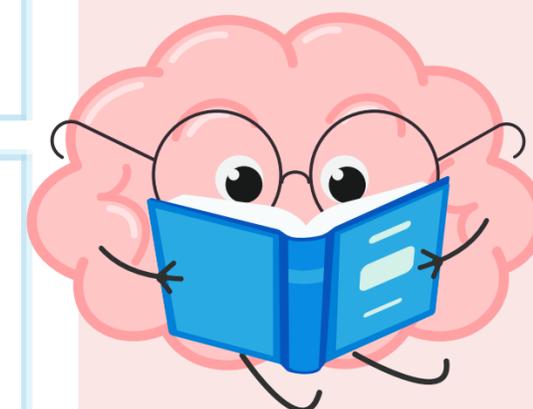
For more resources and recipes, to find a registered dietitian, and to share your feedback, scan the QR code

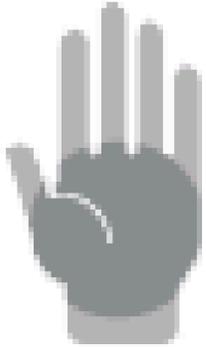
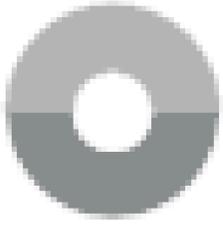


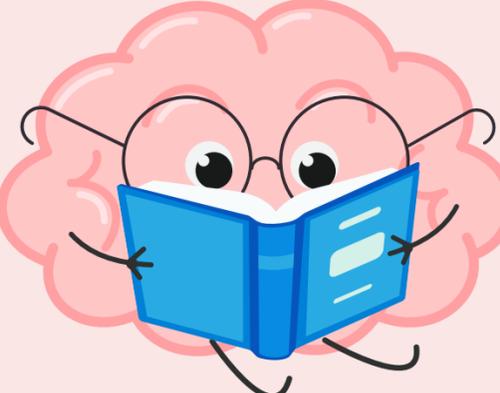
FOODS TO INCLUDE	SERVINGS	SERVING SIZE
Vegetables Total <b>蔬菜</b>	5 or more times a day <b>1天5次以上</b>	
Cruciferous Vegetables (such as broccoli, cauliflower, Brussels sprouts, kale, cabbage, bok choy) <b>花菜 西兰花 大白菜 1周3次</b>	3 times a week	1/2 cup = 1/2 fist 
Consider Including: Raw Leafy Greens (such as lettuce, spinach, mixed greens, kale, cabbage) <b>绿叶菜 1天1次</b>	1 time a day	1 cup = 1 fist 
Fruit Total <b>水果</b>	4 or more times a day <b>1天4次</b>	
Consider Including: Berries (fresh or frozen) <b>草莓蓝莓等浆果 1周3次</b>	3 times a week	1 medium fruit or 1/2 cup = 1/2 fist 



FOODS TO INCLUDE	SERVINGS	SERVING SIZE
<p>Unsalted Nuts or All-natural Nut Butters Total (such as almond butter, peanut butter)</p> <p><b>无盐坚果或者坚果酱</b> 特别是核桃</p> <p>Consider including: Walnuts</p>	<p>1 time a day</p> <p><b>1周1次</b></p> <p>4 or more times a week</p>	<p>1/4 cup nuts = 1 cupped hand or 2 tbsp nut butter</p> 
<p>Beans or Legumes Total <b>豆类</b></p> <p>(such as chickpeas, kidney beans, lentils, navy beans)</p>	<p>2 or more times a week</p> <p><b>1周2次</b></p>	<p>1/2 cup = 1/2 fist</p> 
<p>Fish or Seafood Total (not battered or fried)</p> <p><b>鱼和海鲜</b> (非油炸)</p> <p>Consider Including: Fatty Fish (such as salmon, trout, sardines)</p>	<p>3 times a week</p> <p><b>1周3次</b></p> <p>1 or more times a week</p>	<p>3-4oz = 1 palm</p> 



<b>FOODS TO LIMIT</b> <b>肉类</b>	<b>SERVINGS</b>	<b>SERVING SIZE</b>
<b>Any Meat and Poultry Total</b> No more than 1 meal per day should include meat or poultry	<b>1天1次</b> <small>1 or less per day</small>	<b>1巴掌</b> 
<b>限制红肉</b> <b>Consider Limiting Red and Processed Meats</b> (such as beef, pork, lamb, liver, sausages, hot dogs, jerky, cold cuts, pepperoni)	<b>1周1次</b> <small>Less than 1 per week</small>	<b>3-4oz = 1 palm</b> 
<b>黄油或者奶油</b> <b>Butter, Cream, or High Fat Dairy Spreads</b> (such as sour cream, cream cheese)	<b>1周1次</b> <small>Less than 1 per week</small>	<b>1勺</b> <small>1 tsp butter or 1 tbsp cream</small> 
<b>白面包</b> <b>White Breads</b> (such as bread, rolls, bagels, pita, tortilla)	<b>1周1次</b> <small>1 or less per week</small>	<b>1片</b> <small>1 slice bread or 1/2 bagel</small> 



FOODS TO LIMIT	SERVINGS	SERVING SIZE
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**Pre-packaged Foods and Meals**  
(such as canned soup, instant noodles, frozen appetizers, and entrees)

**Potato Chips, Fries, Pretzels, or other Salty Snacks or Fried Food**

**Store-bought Dairy Desserts**  
(such as ice cream, frozen yogurt, pudding, custard)

**Baked Goods**  
(especially store-bought ones such as cookies, muffins, scones, croissants, donuts, cakes, pies)

**Candy and Chocolate**

**Pop, Sweetened Fruit Juice or any other Sugary Drink**

**加起来1周不超过3次**

3 or less servings per week in total for all these foods

Serving sizes according to the Nutrition Facts table on the food label

**食用量参考食品包装**

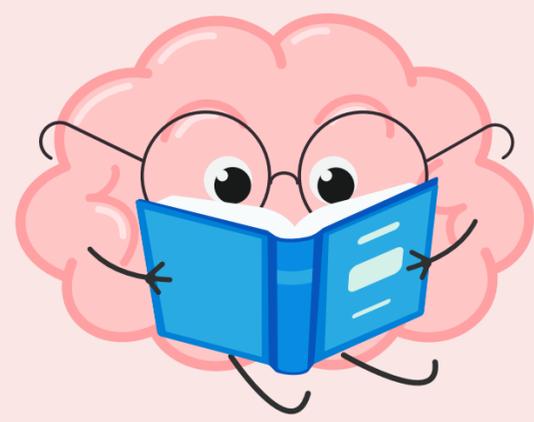
**薯片 油炸零食**

**冰淇淋 布丁**

**蛋糕点心**

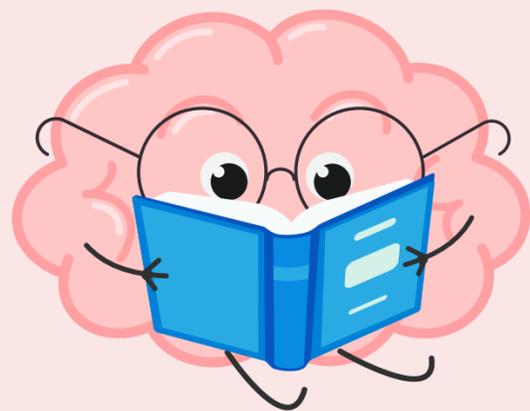
**糖果巧克力**

**含糖饮料**



# 怎样看食品包装上的标签

Serving Size (每食份)



热量

脂肪

碳水化合物

蛋白质

胆固醇

钠

钾

钙

铁

## Nutrition Facts

## Valeur nutritive

Per 1 cup (250 mL)

pour 1 tasse (250 mL)

**Calories 110**

% Daily Value\*  
% valeur quotidienne\*

**Fat / Lipides 0 g**

0 %

Saturated / saturés 0 g

0 %

+ Trans / trans 0 g

**Carbohydrate / Glucides 26 g**

Fibre / Fibres 0 g

0 %

Sugars / Sucres 22 g

22 %

**Protein / Protéines 2 g**

**Cholesterol / Cholestérol 0 mg**

**Sodium 0 mg**

0 %

**Potassium 450 mg**

10 %

**Calcium 30 mg**

2 %

**Iron / Fer 0 mg**

0 %

\*5% or less is a little, 15% or more is a lot

\*5% ou moins c'est peu, 15% ou plus c'est beaucoup

# 咨询医生和注册营养师 制订有针对性的饮食计划



# 下期主题 减糖的考量和误区

## 时间

10月8日 周二  
美加东部时间 晚上7:30



## 内容

- 糖是吃的越少越好吗
- 选择“低糖”食品时的关键考量因素

## 参与方式

Zoom: 907 4591 435  
登陆密码: 168168



# 木水 Flora

小红书号: mushui

**小红书**

扫描二维码  
在小红书找到我




## 糖尿病人怎样 自评食物升糖指数 GLYCEMIC INDEX

GOOD JOB



## 警惕低糖的陷阱

LOW SUGARS= HEALTHY?

低糖 ≠ 低热量

## 生酮饮食真的好吗?

Ketogenic Diet  
-Friend or Foe?



高脂肪  
极低碳水



## 今天你 补钙了吗

TOFU MILK

NEW ARRIVAL

### 两分钟看懂加拿大食品标签 (上) 1/5

#### 营养元素表

加拿大2024年1月1日起正式启用新的食品标签



Nutrition Facts	
Per 1 cup (30 g)	
Calories 120	
% Daily Value*	
Fat 0.5 g	1%
Saturated 0 g + Trans 0 g	0%
Carbohydrate 24 g	
Fibre 5 g	18%
Sugars 4 g	4%
Protein 4 g	
Cholesterol 0 mg	
Sodium 120 mg	5%
Potassium 30 mg	1%
Calcium 20 mg	2%
Iron 4 mg	22%
Thiamine 0.60 mg	50%
Niacin 1.5 mg	9%
Vitamin B6 0.175 mg	10%
Folate 20 µg DFE	5%
Pantothenate 0.4 mg	8%
Phosphorus 175 mg	14%
Magnesium 60 mg	14%
Zinc 1 mg	9%

\*5% or less is a little, 15% or more is a lot

465 g CEREAL

图片: Health Canada

## 零食星人看过来

美味

健康 方便

怎样既要又要还要!

