

# MUSCULOSKELETAL CONDITIONS COMMONLY SEEN IN PEOPLE WITH DIABETES

糖尿病患者常見的關節疾病

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The Canada Diabetes Association – Toronto Chinese  
Chapter 醫生與你講座

主講嘉賓 Guest Speaker:

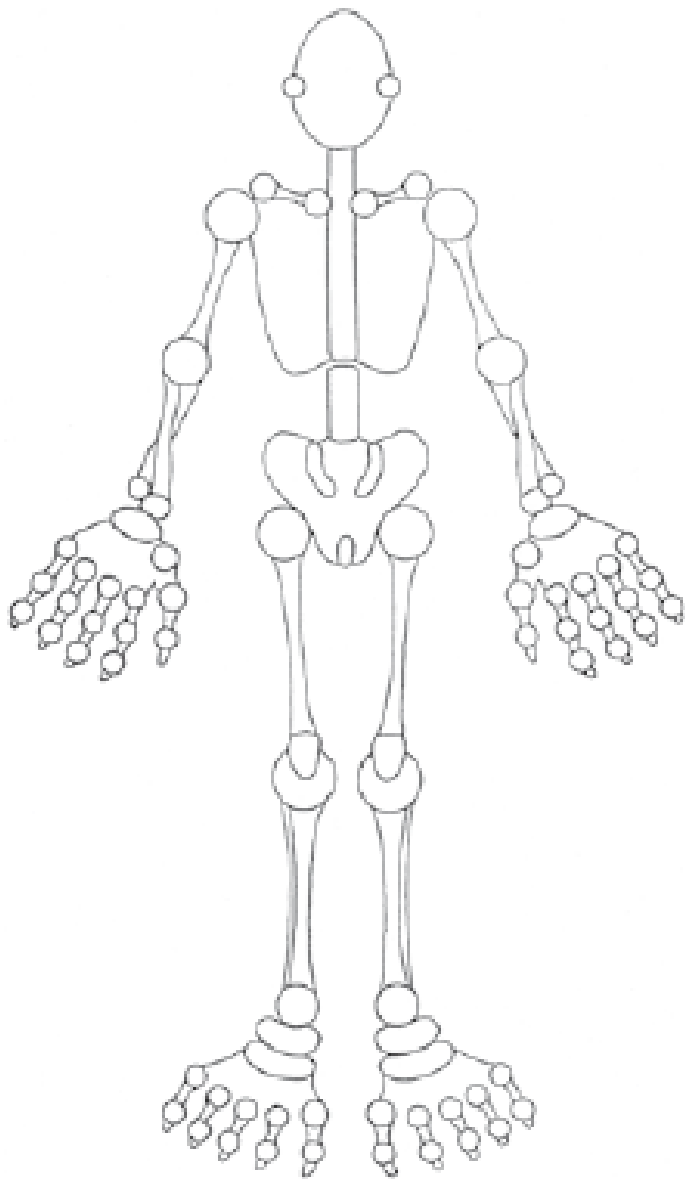
蔡永謙 風濕關節科醫生, 新寧醫院

Dr. Gregory Choy,

Division of Rheumatology, Sunnybrook Health  
Sciences Centre

# Objectives

- At the end of this session, you would gain insights into MSK conditions that often affect people with DM:
  - Shoulders (frozen shoulder)
  - Hands (flexor tenosynovitis, cheiroarthropahty, carpal tunnel syndromes, contractures)
  - Feet (Charcot foot, ischaemic and neuropathic complications)
  - Systemic (osteoarthritis, gout)
  - Others (Spine, muscles..)
- 在本講座中，你會了解糖尿病患者常見的關節問題
  - 糖尿病患者常見的關節疾病
    - 肩膀 (凍結肩/肩周炎)
    - 手
    - 腳
    - 全身（骨關節炎，痛風）

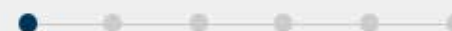


**Figure 21. Printed homunculus for annotation**

Issue 11-2  
<http://www.arthritisresearchuk.org/>

## Arthritis Symptom Checker

1 of 6



Have you had persistent joint pain for 6 weeks or more?



☐ Yes, more than 6 weeks

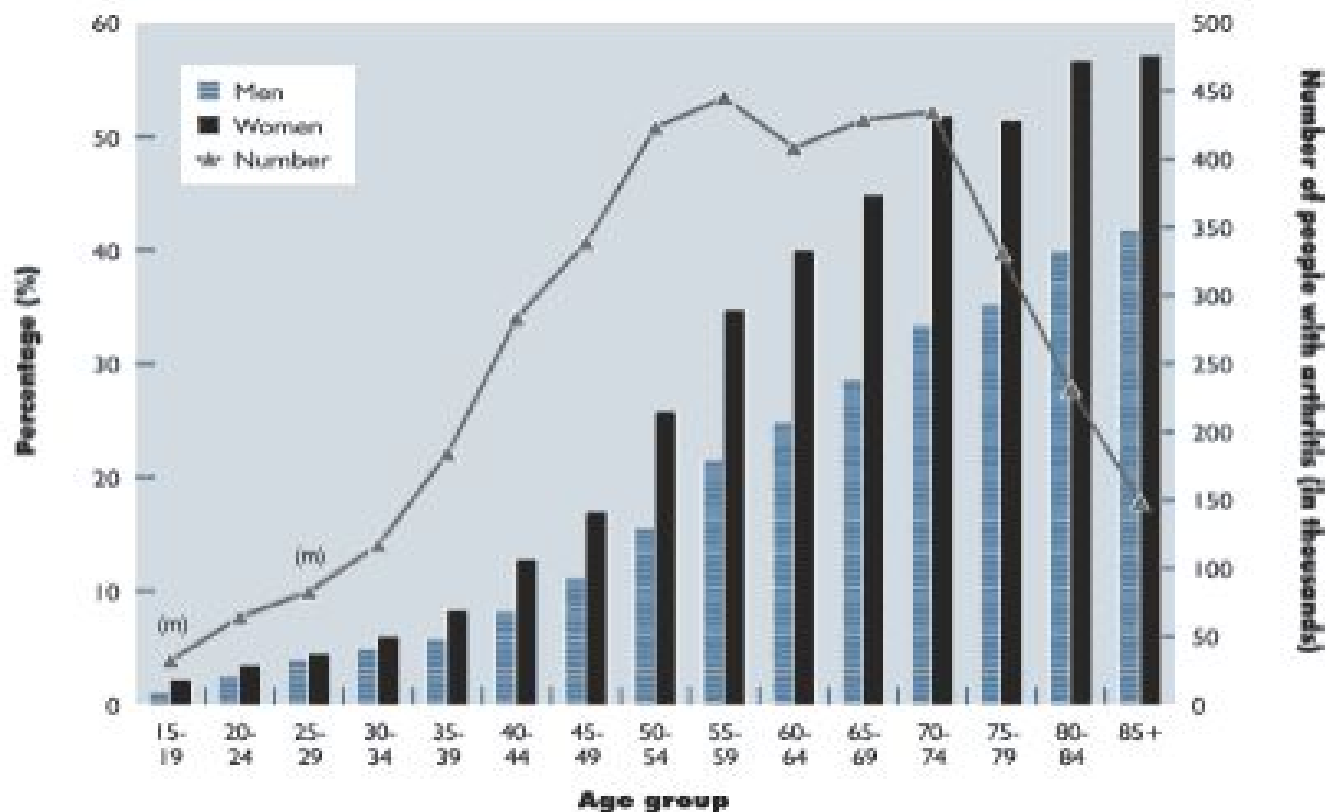


☐ No

NEXT >

# 加拿大 - 關節炎

Figure 2-2 Self-reported prevalence and number of individuals with arthritis/rheumatism, by age and sex, household population aged 15 years and over, Canada, 2000



Note: All values for women are significantly higher than values for men at  $p < 0.05$ , except for age groups 20-24, 25-29, and 30-34.

(m) indicates that the coefficient of variation is between 16.6% and 33.3%.

Data source: Canadian Community Health Survey 2000, Statistics Canada

**Table 1****Musculoskeletal disorders in diabetes mellitus<sup>5</sup>**

<b>Intrinsic complications of DM</b> 糖尿病的並發症	<b>Increased incidence of DM</b> 糖尿病發病率上升	<b>Likely association</b> 可能有關聯
Limited joint mobility syndrome Stiff hand syndrome Muscular infarctions	Dupuytren's disease Adhesive capsulitis Neuropathic arthropathy Flexor tenosynovitis Septic arthritis DISH Diabetic neuropathies	Osteoarthritis Carpal tunnel syndrome

DISH: diffuse idiopathic skeletal hyperostosis

- 手
  - 手關節病變
  - 肌腱炎 (彈弓手)
  - 掌腱膜攣縮症
  - 腕管綜合症
- 肩膀
  - 肩周炎
  - 鈣化性肌腱炎
  - 反射性交感失養症/複雜性局部疼痛症候群
- 足
  - 神經性關節病變
- 肌肉
  - 糖尿病肌梗塞
- 骨架
  - 瀰漫性特發性骨肥厚

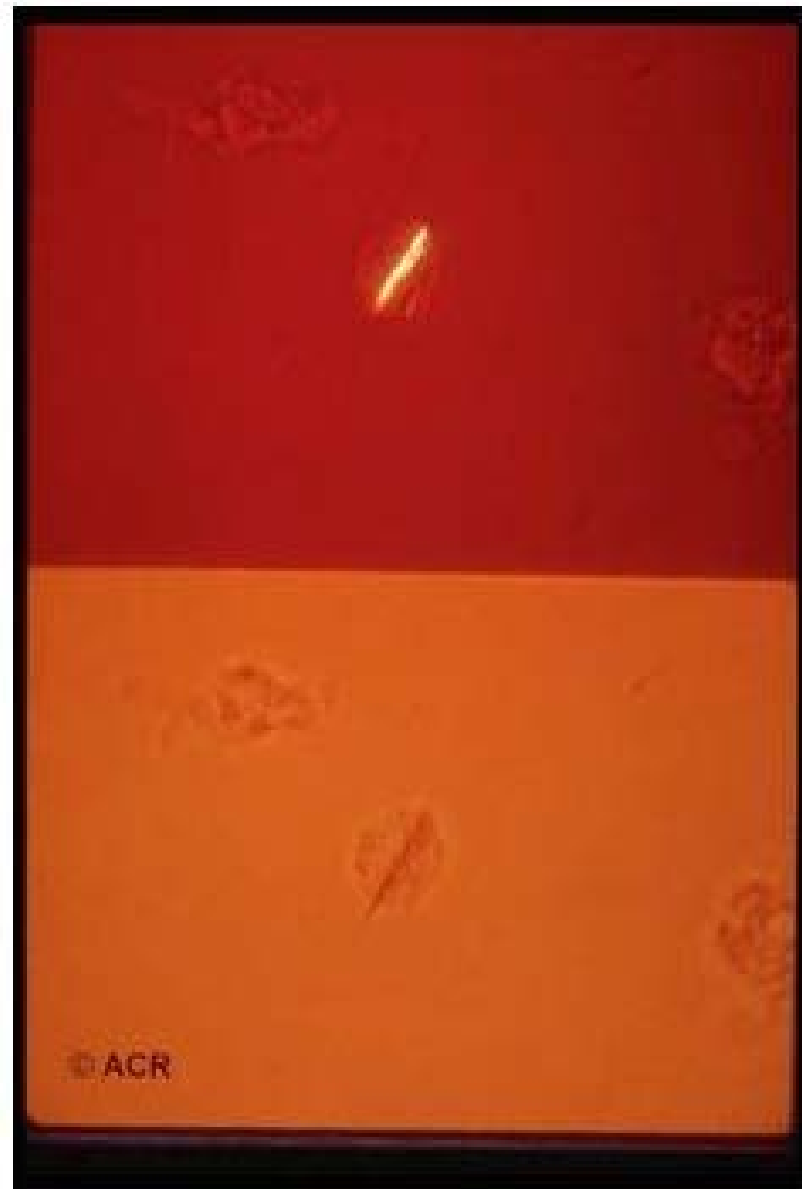
- Knee  
Osteoarthritis

# 骨性關節炎





# Gout 痛風



# Treatment

- Methods to lessen the symptoms and maintain joint function:
  - Lifestyle changes
  - Non-drug modalities
  - Medication
  - Surgery
- 減輕症狀並維持關節功能的方法：
  - 改變生活方式
  - 非藥物治療
  - 藥物治療
  - 手術

# Exercise 運動=

- 3 types:

- Strengthening
- Aerobic or cardiovascular
- Stretching or range-of-motion
- exercise together with diet modification can help shed extra weight

- 3種類型:

- 強化
- 有氧運動
- 伸展運動
- 運動配合飲食的修改能幫助減肥

# Weight Loss 減肥

- Easier said than done!!!
- Many potential methods
  - Diet
  - Exercise
  - Medications
  - Surgery

# Non-Drug Modalities

- Physiotherapy
  - Active (e.g. exercise) and passive (e.g. ultrasound) modalities
- Occupational therapy 職業治療
  - Helpful gadgets and home modifications
- Orthotics and proper footwear 矯形器和合適的鞋
- Acupuncture 針灸學
- Chiropractor 脊骨神經醫學
- Massage therapy 按摩療法

**Table 3. Nonpharmacologic recommendations for the management of knee OA**

We strongly recommend that patients with knee OA should do the following:
Participate in cardiovascular (aerobic) and/or resistance land-based exercise
Participate in aquatic exercise
Lose weight (for persons who are overweight)
We conditionally recommend that patients with knee OA should do the following:
Participate in self-management programs
Receive manual therapy in combination with supervised exercise
Receive psychosocial interventions
Use medially directed patellar taping
Wear medially wedged insoles if they have lateral compartment OA
Wear laterally wedged subtalar strapped insoles if they have medial compartment OA
Be instructed in the use of thermal agents
Receive walking aids, as needed
Participate in tai chi programs
Be treated with traditional Chinese acupuncture*
Be instructed in the use of transcutaneous electrical stimulation*
We have no recommendations regarding the following:
Participation in balance exercises, either alone or in combination with strengthening exercises
Wearing laterally wedged insoles
Receiving manual therapy alone
Wearing knee braces
Using laterally directed patellar taping

# 太極

## Tai chi compared to no exercise (education on OA) for knee OA

**Patient or population:** patients with osteoarthritis of the knee

**Intervention:** tai chi

**Comparison:** no exercise (education on OA)

Outcomes	Illustrative comparative risks* (95% CI)		Relative effect (95% CI)	Absolute difference	No of Participants (studies)	Quality of the evidence (GRADE)	NNT
	Assumed risk	Corresponding risk					
	no exercise (education on OA)	Tai chi					
<b>Benefit</b>							
<b>Pain</b> WOMAC . Scale from: 0 to 35. (follow-up: mean 12 weeks)	36%	77% of those in tai chi group experienced a decrease in pain (53% to 92%)	2	41%	40 (1 <sup>3</sup> )	⊕⊕⊕○ moderate <sup>1</sup>	3 (2 to 5)
<b>Function</b> WOMAC. Scale from: 0 to 85. (follow-up: mean 12 weeks)	34%	73% (49% to 90%)	2	39%	40 (1 <sup>3</sup> )	⊕⊕⊕○ moderate <sup>1</sup>	3 (2 to 6)





# Recommendations from American College of Rheumatology

- NSAIDs 非類固醇類消炎止痛藥 (e.g. ibuprofen, naproxen)
- Acetaminophen 對乙酰氨基酚
- IA steroid 類固醇/激素
- Tramadol 曲馬多
- Duloxetine 千憂解 (神經痛藥物)

Hochberg et al. Arthritis Care Res 2012 Apr;64(4):465-74.

American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee.

## Table 4. Pharmacologic recommendations for the initial management of knee OA\*

We conditionally recommend that patients with knee OA should use one of the following:

Acetaminophen  
Oral NSAIDs  
Topical NSAIDs  
Tramadol  
Intraarticular corticosteroid injections

We conditionally recommend that patients with knee OA should not use the following:

Chondroitin sulfate  
Glucosamine  
Topical capsaicin

We have no recommendations regarding the use of intraarticular hyaluronates, duloxetine, and opioid analgesics

\* No strong recommendations were made for the initial pharmacologic management of knee osteoarthritis (OA). For patients who have an inadequate response to initial pharmacologic management, please see the Results for alternative strategies. NSAIDs = non-steroidal antiinflammatory drugs.

# Medications - Oral

- Analgesics
  - Acetaminophen 對乙酰氨基酚 (e.g. tylenol)
- Nonsteroidal anti-inflammatory drugs (NSAIDs) 非類固醇類 消炎止痛藥
  - Over-The-Counter: ibuprofen
  - Prescription: naproxen, meloxicam...
  - Topical: diclofenac
- COXIB: celecoxib - COX-2選擇性非類固醇消炎止痛藥

# Medications: Injection

- Corticosteroids (cortisone)
  - Safe to do <4 times per joint per year
- 類固醇/激素
  - 每年<4次 -安全

# Surgery手術

- Many different types
  - Different approach for each individual joint
    - e.g. arthroscopies, arthroplasties, arthrodesis...
- Can provide pain relief, restoration of function, correction of malalignment, and possibly prolong life
- Post-operative Rehab is vital

- 許多不同類型
  - 每個關節:不同的方法
  - 例如關節鏡, 關節置換術, 關節融合術...
  - 可以緩解疼痛, 恢復功能, 矯正排列不齊的關節, 並有可能延長壽命
  - 手術後的康復過程至關重要

# Unproven Therapies

## 未經證實的療法

- Many products available commercially
- Although a few studies (often funded by manufacturers of such products) claimed some benefits, most independent clinical studies showed no significant benefits from these products
- 可以買到許多產品  
雖然一些研究說可能有一些好處（通常由產品的製造商出資），大多數獨立的臨床研究表明這些產品沒有顯著好處

買家當心！

**Buyers Beware!**

# Controversies

## 爭議性產品

- Glucosamine showed in several studies to affect glycaemic control
- However, largest study (funded by manufacturer of glucosamine and conducted by its staff) showed inconclusive proof
- **Viscosupplementation** (e.g. hyaluronic acid)
  - Delisted in ON after review but still in use by some
- 硫酸鹽葡萄糖胺在幾項研究中影響血糖控制  
由葡萄糖生產商資助研究，卻顯示證明尚無定論
- 黏彈性補充治療（透明質酸 又稱醣醛酸、玻尿酸、琉璃醣碳基酸）  
在安省檢討後，從OHIP摘牌，但仍有一些人使用

# Areas to be Explored

- People with longer duration of diabetes have more MSK issues
  - Is it aging or result of DM ?
  - Does good glycaemic control help muscles and joints same as it does for other complications ?
- 糖尿病病程較長的人有更多的關節問題
  - 老化或糖尿病導致？
  - 良好血糖控制能不能幫助肌肉和關節？



# Questions and Answers