

EVER
PRESENT
SELF-CONSCIOUS
HOUSEBOUND
RESTRICTS
SOCIALIZING
GRADUAL DECLINE
DEPRESSING
LIMITS SIMPLE TASKS
FEELING
USELESS
SORE AND ACHING
WEARYING
LOOKING LIKE AN INVALID
CONSTANT
REMINDER
OF AGEING
WITHDRAW FROM ACTIVITIES
FRUSTRATING
STIFFNESS
CHANGES WHO I AM
IN DECLINE
I'M NOT MYSELF ANYMORE
ISOLATING

Patient case study. Osteoarthritis

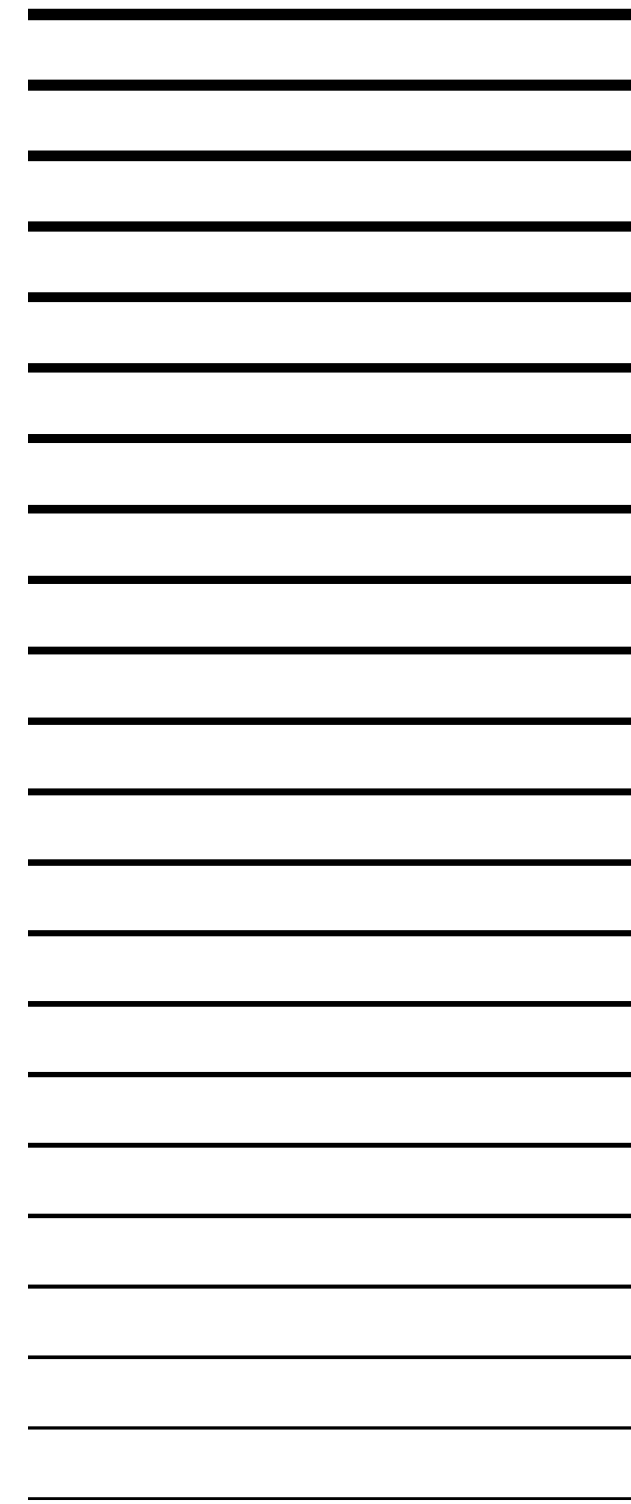
#ListenToPain

Brought to you by the makers of



Start here >

Presentation



Alex

67 years.

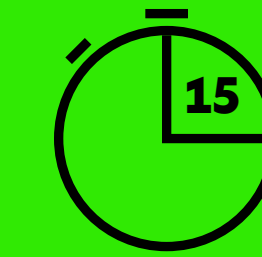
Alex presents with right knee pain and stiffness.



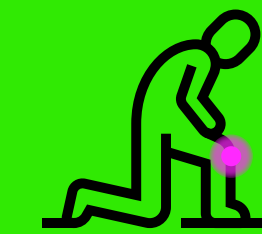
She had diffuse, aching pain over the right knee with periodic sharp exacerbations for two years.



She says pain aggravates on walking and relieves with rest.



She has joint stiffness in the mornings that lasts for less than 15 minutes and disappears on resuming activities.



She has experienced slight swelling of the right knee joint for the past week.

Presentation



History



Clinical examination



Differential diagnosis



Treatment plan



Clinical evidence



Follow-up & summary





Past history and family history:

No history of:

- Fever or loss of weight or appetite.
- Trauma, injury, fall, sprain or surgery.

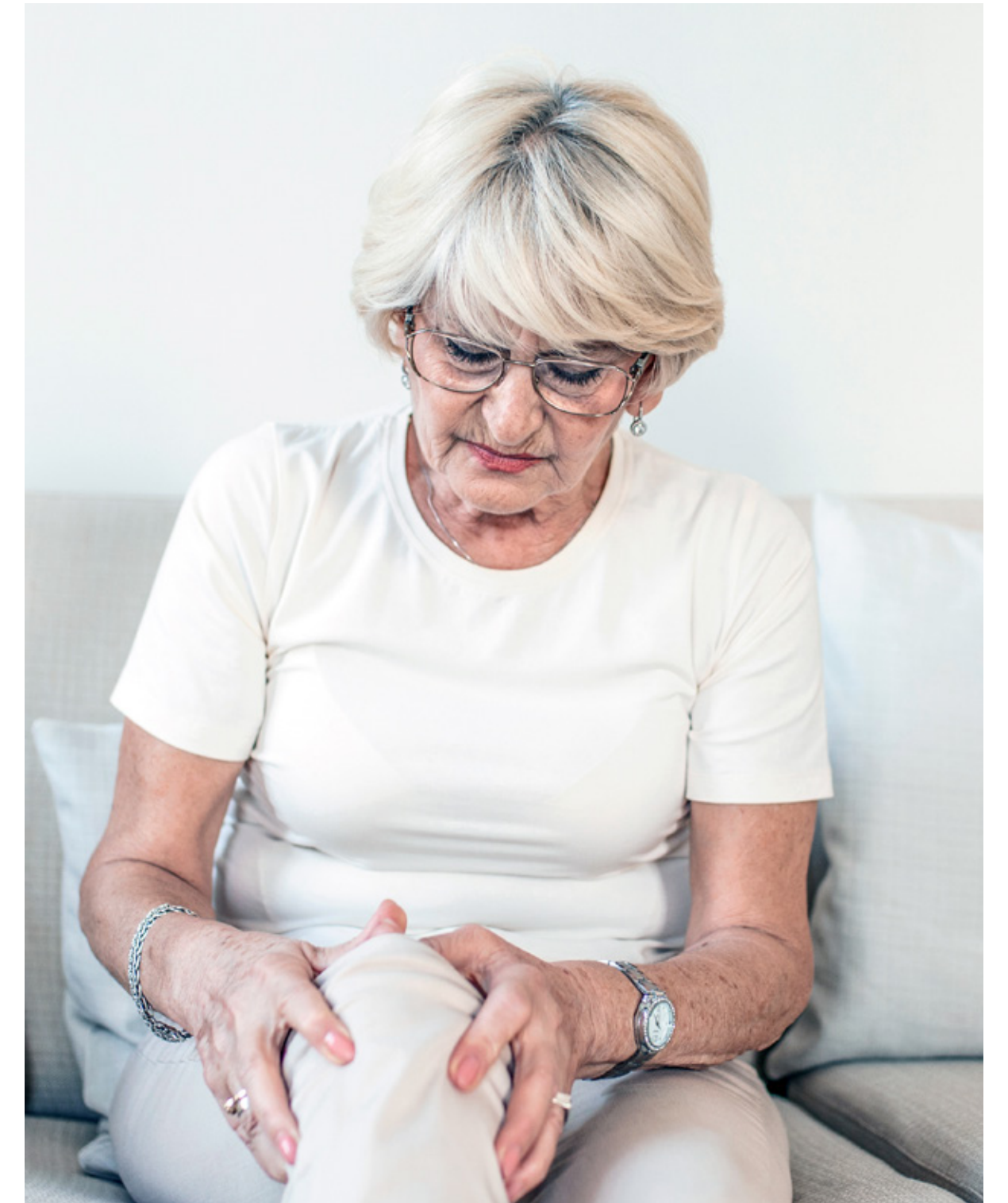
No history of:

- Chronic disease, ailment or drug allergy.
- Gout, rheumatoid arthritis, degenerative joint disease.

Prolonged history of dyspepsia and often complains of acidity.

In the past, has taken some pain killers 'on and off'.

Family history revealed that her mother had osteoarthritis (OA).



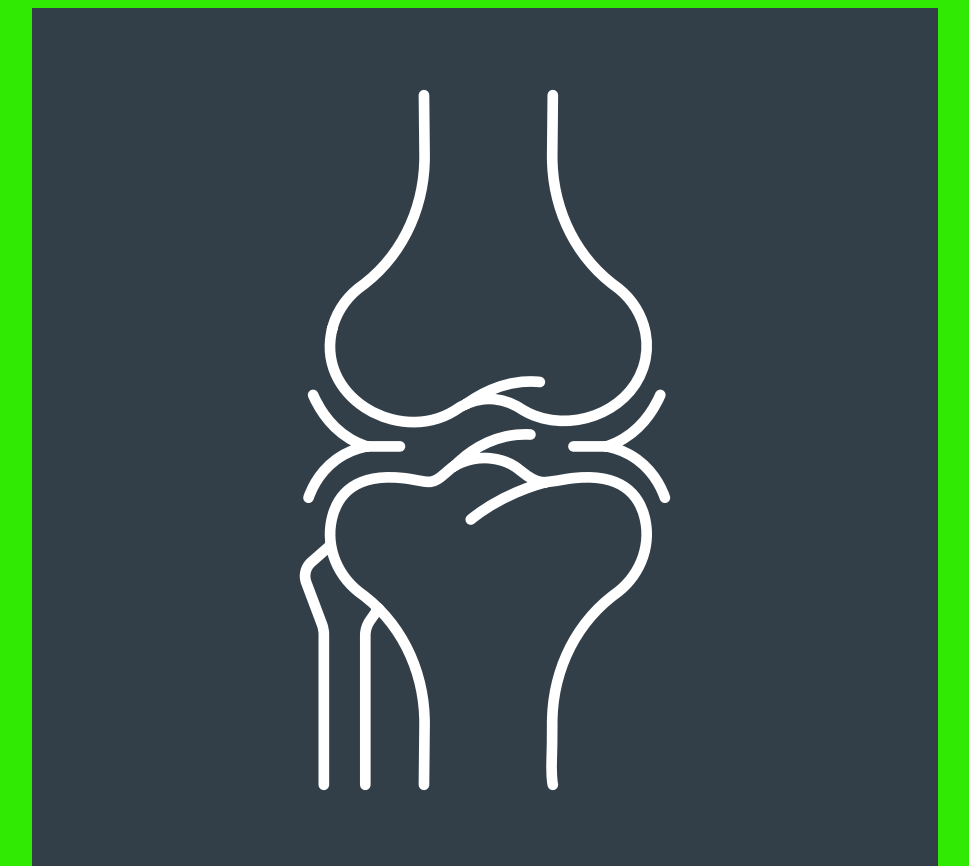
OA, osteoarthritis.





Clinical examination.

- > General appearance: Well-nourished lady with mild limping gait.
- > BP: 130/80mmHg, PR: 78bpm.
- > Temperature: 37°C.
- > BMI: 27.6kg/m².
- > Lungs/CVS/Abdomen: NAD.
- > CNS: Higher mental function-normal.
- > ESR and CRP were normal.
- > X-ray of knee shows narrowing of joint space, mild effusion and osteophytic projections.



BMI, body mass index; BP, blood pressure; CNS, central nervous system; CRP, C-reactive protein; CVS, cardiovascular system; ESR, erythrocyte sedimentation rate; NAD, nothing abnormal detected; PR, pulse rate.



#ListenToPain

Differential diagnosis 

What are the possible causes for Alex's stiffness and pain?

Click an option to select your answer.

OA, osteoarthritis.


PRIMARY OA
RHEUMATOID ARTHRITIS
BURSITIS
PSORIATIC ARTHRITIS


HALEON



Presentation 

History 

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Differential diagnosis 

What are the possible causes for Alex's stiffness and pain?

Click an option to select your answer.


OA, osteoarthritis.

- PRIMARY OA
- × RHEUMATOID ARTHRITIS
- BURSITIS
- PSORIATIC ARTHRITIS

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Differential diagnosis 

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- PRIMARY OA
- RHEUMATOID ARTHRITIS
- × BURSITIS
- PSORIATIC ARTHRITIS

Presentation 

History 

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Differential diagnosis 

What are the possible causes for Alex's stiffness and pain?

Click an option to select your answer.


OA, osteoarthritis.

PRIMARY OA
RHEUMATOID ARTHRITIS
BURSITIS
× PSORIATIC ARTHRITIS

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What are the possible causes for Alex's stiffness and pain?


Click an option to select your answer.

OA, osteoarthritis.

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- ✓ PRIMARY OA
- RHEUMATOID ARTHRITIS
- BURSITIS
- PSORIATIC ARTHRITIS



Differential diagnosis 

Alex was diagnosed by an orthopaedic surgeon as grade-3 OA, based on the following radiological investigation criteria.

Radiological features for grading¹

- Formation of **osteophytes** on the joint margins or, in the case of the knee joint, on the tibial spines.
- **Periarticular ossicles**; these are found chiefly in relation to the distal and proximal interphalangeal joints.
- **Narrowing of joint cartilage** associated with sclerosis of subchondral bone.
- Small **pseudocystic areas with sclerotic walls** situated usually in the subchondral bone.
- **Altered shape of the bone ends**, particular in the head of the femur.

Radiographic criteria for assessment of OA¹

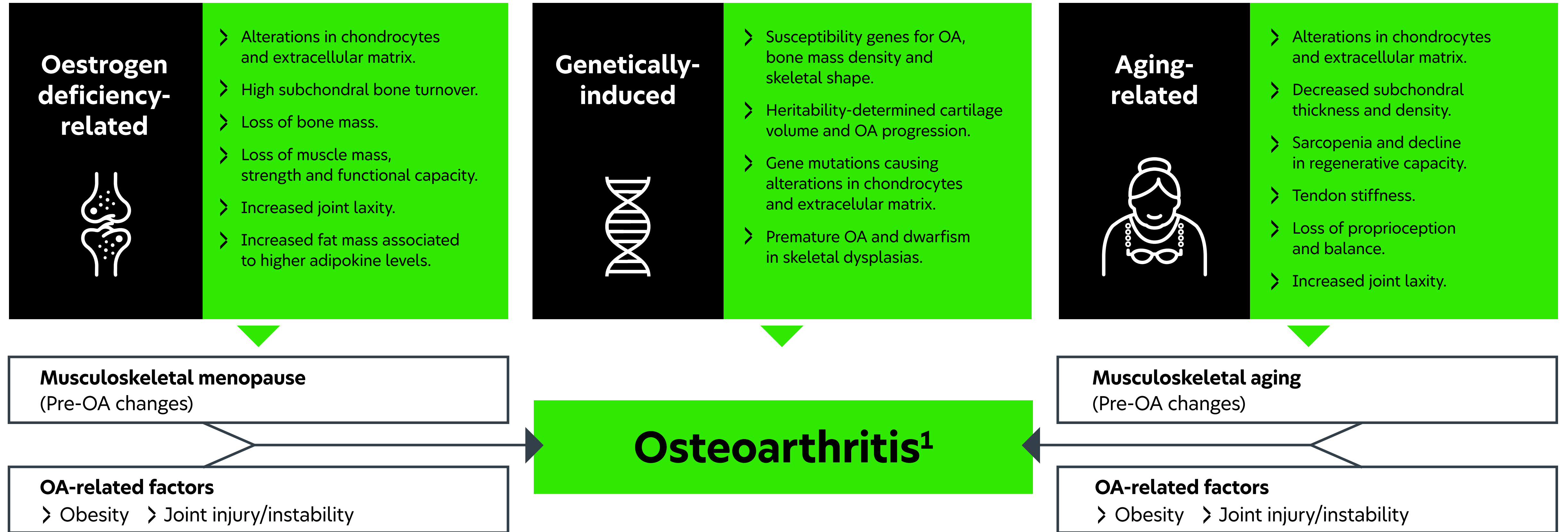
Grade 0	None	No features of OA
Grade 1	Doubtful	Minute osteophyte, doubtful significance
Grade 2	Minimal	Definite osteophyte, unimpaired joint space
Grade 3	Moderate	Moderate diminution of joint space
Grade 4	Severe	Joint space greatly impaired with sclerosis of subchondral bone

Reproduced from Spector and Cooper (1993. Osteoarthritis and Cartilage 1:203-206) with permission.
 OA, osteoarthritis.
 1. Arden N, Nevitt M. *Best Pract Res Clin Rheumatol* 2006;20(1):3-25.



Differential diagnosis 

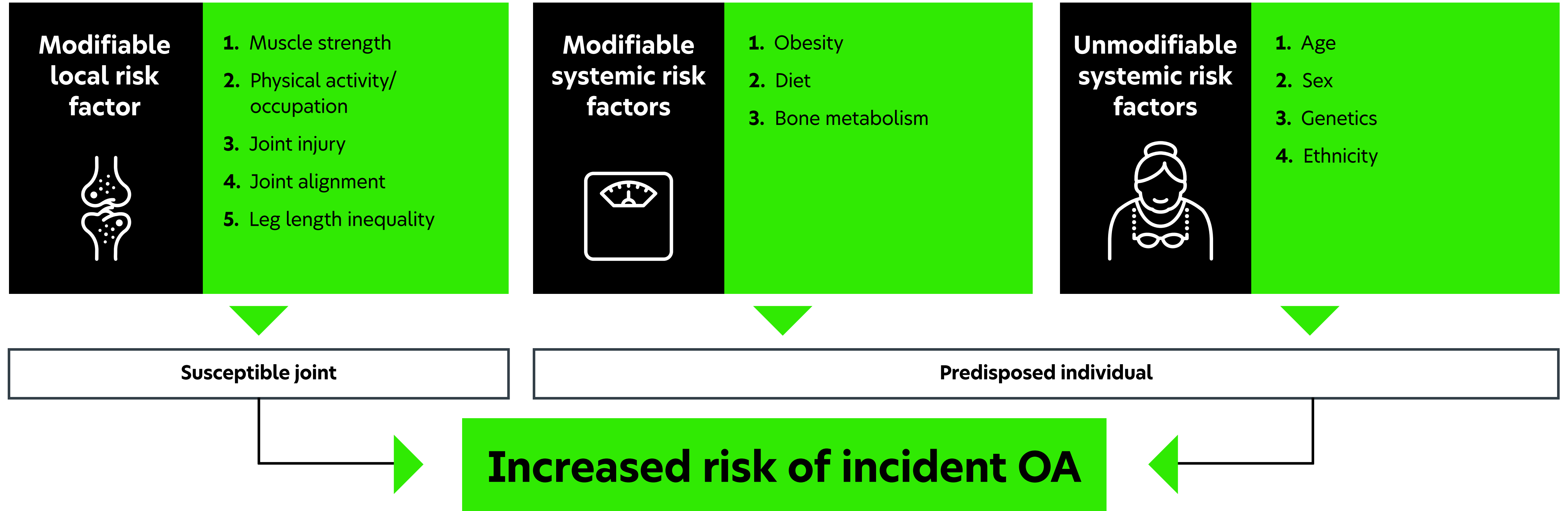
Possible reasons for development of primary OA.



OA, osteoarthritis.
 1. Sen R, Hurley J. *Treasure Island (FL): StatPearls Publishing* 2021. Available at: www.ncbi.nlm.nih.gov/books/NBK482326 (last accessed May 2021). 2. Sankowski A. *Pol J Radiol* 2013;78(1):7-17.

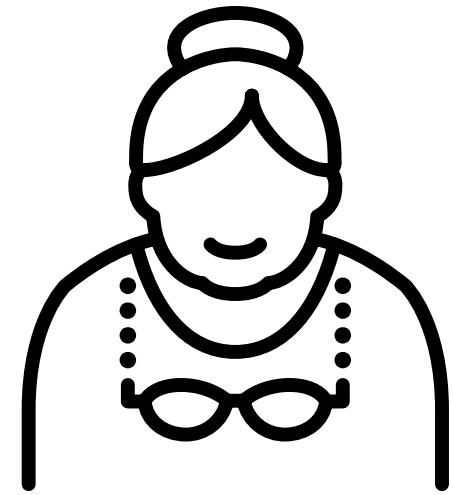
Differential diagnosis 

What are the risk factors for OA?¹

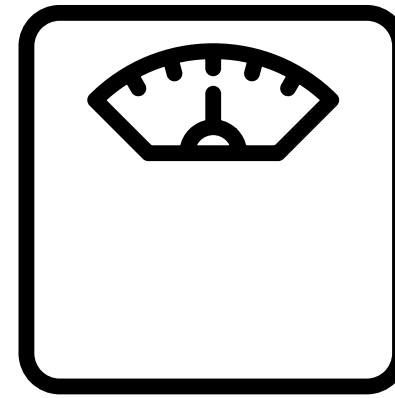


OA, osteoarthritis.
1. Johnson V, Hunter D. *Best Pract Res Clin Rheumatol* 2014;28(1):5-15.

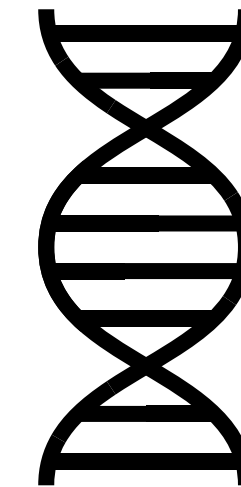
Risk factors
for OA in Alex.¹



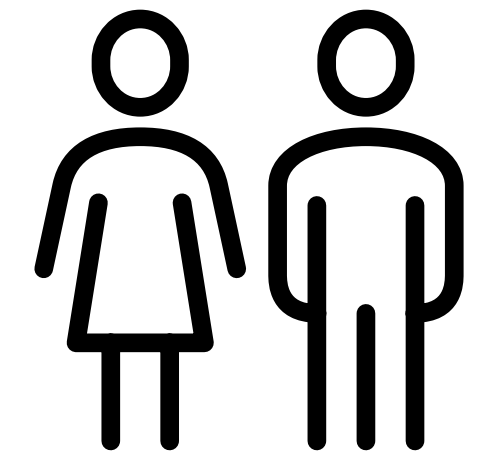
Older age



Obesity

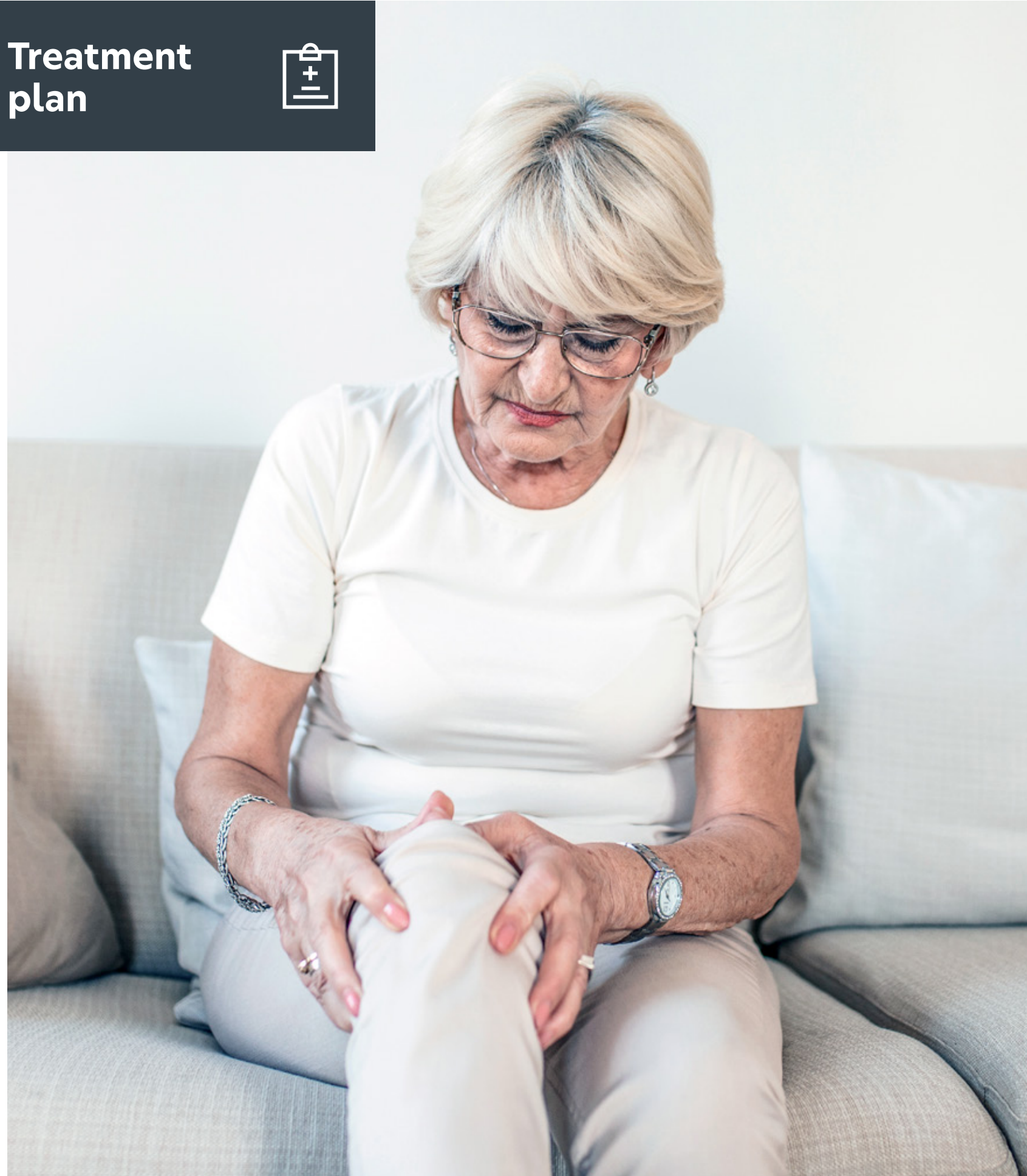


Heredity



Gender

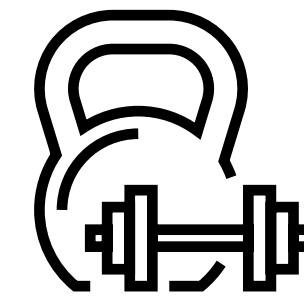
OA, osteoarthritis.
1. Johnson V, Hunter D. *Best Pract Res Clin Rheumatol* 2014;28(1):5-15.



Clinical recommendations for Alex.

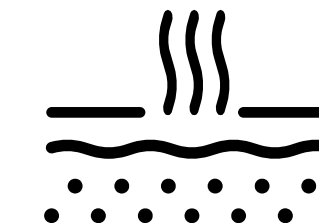
Lifestyle modification

- > Exercise.
- > Weight loss.



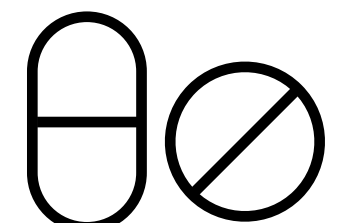
Non-pharmacologic

- > Heat, therapeutic cooling.
- > Tibiofemoral knee brace for stability.
- > Balance training.
- > Yoga.



Pharmacologic

- > Oral non-steroidal anti-inflammatory drugs (NSAIDs).
- > Topical NSAIDs.
- > Oral paracetamol.



NSAID, non-steroidal anti-inflammatory drug.
1. Kolasinski S, et al. *Arthritis Care Res* 2020;72(2):149-162.



#ListenToPain

Treatment
plan



What
modalities
can be used
to treat Alex?

Click an option to select your answer.

WEIGHT LOSS
EXERCISE
PHYSIOTHERAPY
**PHARMACOLOGICAL
MANAGEMENT**
**ALL OF
THE ABOVE**

HALEON



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History



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Differential
diagnosis



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Clinical
evidence



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plan



What
modalities
can be used
to treat Alex?

Click an option to select your answer.

× WEIGHT LOSS

EXERCISE

PHYSIOTHERAPY

PHARMACOLOGICAL
MANAGEMENT

ALL OF
THE ABOVE



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What
modalities
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WEIGHT LOSS

× EXERCISE

PHYSIOTHERAPY

PHARMACOLOGICAL
MANAGEMENT

ALL OF
THE ABOVE

HALEON



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What modalities can be used to treat Alex?

Click an option to select your answer.

WEIGHT LOSS

EXERCISE

× PHYSIOTHERAPY

PHARMACOLOGICAL MANAGEMENT

ALL OF THE ABOVE



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What
modalities
can be used
to treat Alex?

Click an option to select your answer.

WEIGHT LOSS

EXERCISE

PHYSIOTHERAPY

× PHARMACOLOGICAL
MANAGEMENT

ALL OF
THE ABOVE

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What
modalities
can be used
to treat Alex?

Click an option to select your answer.

- ✓ WEIGHT LOSS
- ✓ EXERCISE
- ✓ PHYSIOTHERAPY
- ✓ PHARMACOLOGICAL MANAGEMENT
- ✓ ALL OF THE ABOVE

HALEON



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Lifestyle modification for Alex¹



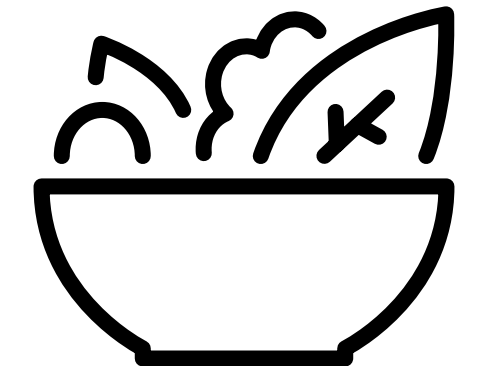
Regular walking



Exercise therapy: muscle strengthening and range of motion



Balance training and yoga



Healthy diet for weight loss

1. Johnson V, Hunter D. Best Pract Res Clin Rheumatol 2014;28(1):5-15.



#ListenToPain

Treatment
plan



What are
the possible
therapeutic
options for Alex?

Click an option to select your answer.

TOPICAL
DICLOFENAC

ORAL
PARACETAMOL

ORAL
IBUPROFEN

ALL OF
THE ABOVE

HALEON



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What are
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× **TOPICAL
DICLOFENAC**

ORAL
PARACETAMOL

ORAL
IBUPROFEN

ALL OF
THE ABOVE

HALEON



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#ListenToPain

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TOPICAL
DICLOFENAC

× ORAL
PARACETAMOL

ORAL
IBUPROFEN

ALL OF
THE ABOVE

HALEON



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What are
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TOPICAL
DICLOFENAC

ORAL
PARACETAMOL

× ORAL
IBUPROFEN

ALL OF
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What are
the possible
therapeutic
options for Alex?

Click an option to select your answer.

- ✓ TOPICAL
DICLOFENAC
- ✓ ORAL
PARACETAMOL
- ✓ ORAL
IBUPROFEN
- ✓ ALL OF
THE ABOVE

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Clinical evidence



What do guidelines recommend?

Topical NSAIDs

There is strong-grade evidence from over 13 clinical guidelines & systematic reviews recommending use of topical NSAIDs over systemic treatments due to a more favourable safety profile (e.g., ESCEO, OARSI, ACR, NICE).

Paracetamol for OA

Based on guidelines & peer-reviewed literature, the role of paracetamol in OA has been downgraded to neutral or weak recommendation (e.g., ESCEO, OARSI, ACR).



Based on robust evidence
15 guidelines &
6 systemic reviews.¹⁻²³

[View references >](#)

ACR, American College of Rheumatology and the Arthritis Foundation; ESCEO, The European Society for Clinical and Economic Aspects of Osteoporosis and Osteoarthritis; NICE, National Institute for Health and Care Excellence; NSAID, non-steroidal anti-inflammatory drug; OA, osteoarthritis; OARSI, Osteoarthritis Research Society International; PANLAR, Pan American League of Associations for Rheumatology; RACGP, The Royal Australian College of General Practitioners.

Presentation



History



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Differential diagnosis



Treatment plan

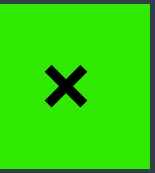


Clinical evidence



Follow-up & summary





References

1. Bannuru R, et al. *Osteoarthritis Cartilage* 2019;27(11):1578-1589.
2. Kolasinski S, et al. *Arthritis Rheumatol* 2020;72(2):220-233.
3. Rillo O, et al. *J Clin Rheumatol* 2016;22(7):345-354.
4. National Institute for Health and Care Excellence (NICE), United Kingdom. Osteoarthritis: care and management. Clinical guideline CG177. Available at: www.nice.org.uk/guidance/cg177 (last accessed May 2021).
5. Royal Australian College of General Practitioners. Guideline for the management of knee and hip osteoarthritis 2nd edition. Available at: www.racgp.org.au/getattachment/71ab5b77-afdf-4b01-90c3-04f61a910be6/Guideline-for-the-management-of-knee-and-hip-osteoarthritis.aspx (last accessed May 2021).
6. Bruyere O, et al. *Semin Arthritis Rheum* 2019;49(3):337-350.
7. Kloppenburg M, et al. *Ann Rheum Dis* 2019;78(1):16-24.
8. The Best Practice Advocacy Centre New Zealand. Managing pain in osteoarthritis: focus on the person. Available at: www.bpac.org.nz/2018/osteoarthritis.aspx (last accessed May 2021).
9. Kielly J, et al. *Can Pharm J (Ott)* 2017;150(3):156-168.
10. Ariani A, et al. *Reumatismo* 2019;71(51):5-21.
11. National Institute of Social Services for Retirees and Pensioners (INSSJP-PAMI), Argentina. La osteoartritis. Prevención, tratamiento y profilaxis. Available from: www.prestadores.pami.org.ar/portalmedicosdecabecera/includes/pdf/Cartilla_Medicos_Artrosis.pdf (last accessed May 2021).
12. Ickinger C, Tikly M. *South African Family Practice* 2010;52(5):382-390.
13. Federal Ministry of Health Nigeria. Nigeria standard treatment guidelines 2nd edition 2016. Available at: www.medbox.org/document/nigeria-standard-treatment-guidelines (last accessed May 2021).
14. European Alliance of Association for rheumatology. EULAR Recommendations: Recommendations for management. 2021.
15. Hagen M, Alchin J. *Pain Manag* 2020;10(2):117-129.
16. Ministry of Health Malaysia. Clinical Practice Guidelines Management of Osteoarthritis 2nd Edition. Available at: www.researchgate.net/publication/321936728_CPG_Management_of_Osteoarthritis_2nd_Edition (last accessed May 2021).
17. Leopoldino A, et al. *Cochrane Database Syst Rev* 2019;2(2):CD013273.
18. Ibrahim G, et al. *Clin Exp Rheumatol* 2009;27(3):469.
19. Conaghan P, et al. *Drugs Aging* 2019;36(1):7-14.
20. Rodriguez-Merchan C. *J Acute Dis* 2016;5(3):190-193.
21. Stewart M, et al. *Rheumatol Int* 2018;38(11):1985-1997.
22. Bannuru R, et al. *Osteoarthritis Cartilage* 2020;28:S73-S74.
23. Witten PJ, Xia J. *Curr Med Res Opin* 2020;36(4):637-650.

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Clinical evidence 

What do guidelines recommend?

Osteoarthritis pain



Topical diclofenac

Recommended first-line therapy for all patients including below

Paracetamol

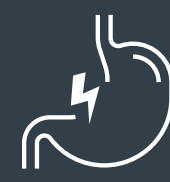
Combination/ concomitant therapy with topical NSAIDs

Ibuprofen

Recommended when response to paracetamol is inadequate



CVD



GI risks



Elderly

Alex's risk factors



★★★

**Based on robust evidence
15 guidelines &
6 systemic reviews.¹⁻²³**


[View references >](#)

CVD, cardiovascular disease; GI, gastrointestinal; NSAID, non-steroidal anti-inflammatory drug.

Presentation 

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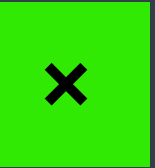
Differential diagnosis 

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Clinical evidence 

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References

1. Bannuru R, et al. *Osteoarthritis Cartilage* 2019;27(11):1578-1589.
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6. Bruyere O, et al. *Semin Arthritis Rheum* 2019;49(3):337-350.
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Presentation



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Differential diagnosis



Treatment plan



Clinical evidence



Follow-up & summary



#ListenToPain

Clinical
evidence



What are
the possible
therapeutic
options for Alex?

Click an option to select your answer.

TOPICAL
DICLOFENAC

ORAL
PARACETAMOL

ORAL
IBUPROFEN

TOPICAL
DICLOFENAC +
ORAL
PARACETAMOL

HALEON



Presentation



History



Clinical
examination



Differential
diagnosis



Treatment
plan



Clinical
evidence



Follow-up
& summary



Clinical evidence



What are the possible therapeutic options for Alex?

Click an option to select your answer.

- × TOPICAL DICLOFENAC
- ORAL PARACETAMOL
- ORAL IBUPROFEN
- TOPICAL DICLOFENAC + ORAL PARACETAMOL



Presentation



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Differential diagnosis



Treatment plan



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Follow-up & summary



Clinical evidence



What are the possible therapeutic options for Alex?

Click an option to select your answer.

TOPICAL
DICLOFENAC

×

ORAL
PARACETAMOL

ORAL
IBUPROFEN

TOPICAL
DICLOFENAC +
ORAL
PARACETAMOL

Presentation



History



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Differential diagnosis



Treatment plan



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Clinical evidence



What are the possible therapeutic options for Alex?

Click an option to select your answer.

TOPICAL
DICLOFENAC

ORAL
PARACETAMOL

× ORAL
IBUPROFEN

TOPICAL
DICLOFENAC +
ORAL
PARACETAMOL



Presentation



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Clinical evidence



What are the possible therapeutic options for Alex?

Click an option to select your answer.

TOPICAL
DICLOFENAC

ORAL
PARACETAMOL

ORAL
IBUPROFEN



TOPICAL
DICLOFENAC +
ORAL
PARACETAMOL

Presentation



History



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Treatment plan



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Follow-up & summary



Clinical evidence



What is the recommended management protocol for Alex?

This elderly patient has a history of GI adverse events.



Topical diclofenac and short-term oral paracetamol

OR

Low-dose **ibuprofen** along with PPI for short-term when response to paracetamol is ineffective

This recommendation is per the current guidelines, however final clinical decision needs to be taken by the physician on a case-by-case basis.¹



GI, gastrointestinal; NSAID, non-steroidal anti-inflammatory drug; PPI, proton pump inhibitor.
1. Kolasinski S, et al. *Arthritis Rheumatol* 2020;72(2):220-233.

Presentation



History



Clinical examination



Differential diagnosis



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Clinical evidence



Follow-up & summary



Follow-up & summary



Alex's follow-up management.

- If symptoms persist, low-dose **ibuprofen (200mg every 6 hours)** along with short-term PPI (for up to 10 days) is recommended, if paracetamol is ineffective.²
- If unresponsive after the above, **refer to a specialist.**

PPI, proton pump inhibitor.
1. Kolasinski S, et al. *Arthritis Rheumatol* 2020;72(2):220-233. 2. United States Food & Drug Administration (FDA). Ibuprofen Drugs Facts Label. Available at: www.fda.gov/drugs/postmarket-drug-safety-information-patients-and-providers/ibuprofen-drug-facts-label (last accessed May 2021).



Presentation



History



Clinical examination



Differential diagnosis



Treatment plan



Clinical evidence



Follow-up & summary





Summary

A 67-year-old lady presented with right knee pain and stiffness each morning for the last 2 years.

- > **Symptoms have worsened over the last 5-6 months**, affecting her daily activities. Pain tends to worsen throughout the day, whereas stiffness tends to improve. She had also noticed slight swelling of the right knee joint for the past 1 week.
- > **She has a prolonged history of dyspepsia** and often complains of acidity. X-ray of knee shows narrowing of joint space, mild effusion and osteophytic projections.
- > Based on the clinical features and radiological findings **a diagnosis of primary OA was made.**

Application of topical diclofenac 1% gel (2g) four times a day and oral paracetamol 500mg-1g SOS is recommended for this patient.



OA, osteoarthritis; SOS, as necessary.

1. United States Food & Drug Administration (FDA). Voltaren Gel (diclofenac sodium topical gel). Highlights of prescribing information. Available at: www.accessdata.fda.gov/drugsatfda_docs/label/2009/022122s006lbl.pdf (last accessed May 2021).



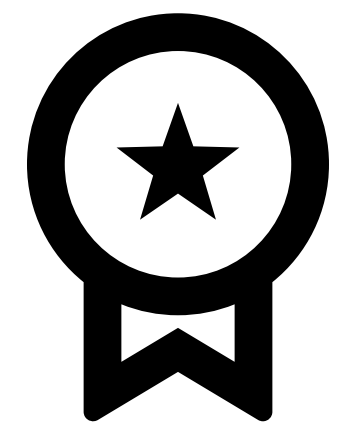
Certificate

This is to certify that

Dr. _____

has completed the course:
Patient Case Study.

Osteoarthritis



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