Supplementary Table 3: Questions and recommendations from China guideline of OA, response from GPT-4

	Question	Guideline Recommendation	GPT-4 response
1	What are the high-risk	Recommendation 1: Individuals who have one or more of the	Osteoarthritis (OA) is a degenerative joint disease, and certain
	populations for	following risk factors are considered high-risk populations for	populations are at a higher risk than others. These include:
	osteoarthritis?	osteoarthritis (OA): age 40 years and above, female gender,	
		obesity or overweight, history of trauma (strong recommendation,	1. **Older adults**: The risk of developing OA increases with age.
		evidence level: B).	Most people over the age of 60 have OA to some degree, but its
		Recommendation 2: High-risk populations for knee osteoarthritis	severity varies.
		(OA) also include individuals with periarticular muscle atrophy,	
		long-term engagement in heavy labor or specific occupations,	2. **Women**: Women are more likely than men to develop OA,
		family history of OA, residing in high-risk areas, or having gut	especially after the age of 50.
		dysbiosis (weak recommendation, evidence level: C).	
		Recommendation 3: Individuals at high risk of hip osteoarthritis	3. **Obese individuals**: Extra body weight puts additional
		(OA) also include those with the presence of risk factors such as	pressure on weight-bearing joints like the knees and hips, increasing
		hip dysplasia, cam deformity of the femoral neck, long-term	the risk of OA. Also, fat tissue produces proteins that may cause
		engagement in weight-bearing labor or other specific occupations,	harmful inflammation in and around the joints.
		and a family history of OA patients (Recommendation strength:	
		Strongly recommend, Evidence level: C).	4. **Individuals with joint injuries**: People who have had a joint
		Recommendation 4: Individuals at high risk of hand OA also	injury, such as a fracture or ligament tear, are more likely to
		include those with the presence of risk factors such as long-term	eventually develop OA in that joint.
		engagement in specific hand labor, being in perimenopause, a	
		family history of OA patients, or dysbiosis of gut microbiota	5. **People with genetic predisposition**: Some people inherit
		(Recommendation strength: Weakly recommend, Evidence level:	genes that make them more likely to develop OA. For instance,
		C).	individuals with familial forms of hand OA or hip OA have genetic
			mutations that cause the condition.

			6. **People with certain occupations**: Jobs that involve repetitive stress on a particular joint can increase the risk of developing OA in that joint. For example, professional athletes, construction workers, or those who do heavy lifting as part of their jobs.
			7. <b>**</b> People with certain metabolic or endocrine disorders <b>**</b> : Conditions like diabetes and hypothyroidism can also increase the risk of developing OA.
			8. <b>**</b> Individuals with other joint diseases or malformations <b>**</b> : People who have rheumatoid arthritis, gout, or congenital joint malformations are also at a higher risk.
			Remember that while these factors can increase the risk, they don't guarantee that someone will develop OA. Many people with one or more risk factors never develop the disease, while others with no known risk factors do. It's also important to note that although OA is often associated with aging, it's not a natural part of aging, and healthy lifestyle choices can reduce the risk and slow progression if it does occur.
2	What are the main clinical manifestations of osteoarthritis?	Recommendation 5: Joint pain and limited joint mobility are the most common clinical symptoms of osteoarthritis (OA) (strong recommendation, evidence level: C). Recommendation 6: Tenderness and joint deformity are the most common signs of hand osteoarthritis (OA) and knee OA. Crepitus	Osteoarthritis (OA) is a degenerative joint disease that affects the whole joint including bone, cartilage, ligaments, and muscles. Its clinical manifestations can vary, but the most common signs and symptoms include:

	OA (Recommendation strength: Strongly recommend, Evidence	joint may hurt during or after movement.
	level: C).	
		2. **Stiffness**: Joint stiffness is most noticeable upon waking up
		in the morning or after a period of inactivity.
		3. **Loss of flexibility**: Individuals may not be able to move their
		joint through its full range of motion.
		4 **Construction the is a creating an examine connection on a size when
		the joint is used
		the joint is used.
		5. **Swelling**: This can occur because of inflammation within the
		joint or the production of extra synovial fluid, a natural lubricant in
		your joints.
		6. **Bone spurs**: These are extra bits of bone, which feel like hard
		lumps, that form around the affected joint.
		7. **Muscle weakness**: Particularly in OA of the knee, the muscles
		surrounding the joint may become weaker.
		0 **T
		o runcuonal impairment <sup>1</sup> . As the disease progresses, it might
		ioint such as walking, climbing stairs, opening jars, or turing
		john, such as warking, chinoing stans, opening jars, of typing.
		The intensity of these symptoms can vary from person to person, and
		<ol> <li>**Functional impairment**: As the disease progresses, it mi become difficult to perform daily activities that require the use of joint, such as walking, climbing stairs, opening jars, or typing.</li> <li>The intensity of these symptoms can vary from person to person,</li> </ol>

			even from day to day for the same person. Also, it's important to
			remember that the severity of symptoms might not directly
			correspond with the degree of joint damage - some people
			experience severe symptoms with minor damage, while others have
			little to no symptoms despite severe damage.
			If you suspect you have OA or are experiencing worsening symptoms
			of existing OA, please seek medical attention. It's a chronic
			condition, but several treatment options can help manage the
			symptoms and improve quality of life.
3	What imaging	Recommendation 7:X-ray examination is the preferred choice for	Imaging is an essential part of the diagnostic process for
	examinations should	suspected osteoarthritis (OA) patients. If necessary, further	osteoarthritis (OA). The type of imaging depends on the suspected
	clinical physicians select	examinations such as CT, MRI, and ultrasound can be performed	location of the OA, the severity of the patient's symptoms, and what
	for suspected osteoarthritis	to determine the location and extent of degeneration and facilitate	information the doctor is trying to gather. Here are some common
	patients?	differential diagnosis (strong recommendation, evidence level: B).	types of imaging used:
			1. **X-ray**: This is the most commonly used imaging technique
			for diagnosing OA. It can show bone damage, cartilage loss (seen as
			a narrowing of the space between the bones), bone spurs, and
			changes in the shape or alignment of the joints.
			2. **MRI (Magnetic Resonance Imaging)**: While not typically the
			first choice, an MRI can provide a more detailed image and show
			damage to other structures within the joint like ligaments and
			tendons, in addition to the bones and cartilage. MRI might be more
			helpful in the early stages of the disease when X-ray findings are not

			yet significant, or when more information is needed about the
			condition of the joint.
			3. ** Ultrasound **: This is less commonly used for OA, but it can be
			helpful in evaluating soft tissue structures around the joint, such as
			bursae, and can also reveal fluid within the joint or bone spurs.
			4. **CT scan (Computed Tomography)**: While not commonly
			used for routine evaluation of OA, it can be helpful in some cases to
			assess the bony anatomy of the joint, particularly before joint
			replacement surgery.
			In addition to imaging studies, the clinical diagnosis of OA often
			involves a medical history assessment, physical examination, and
			sometimes laboratory tests to help rule out other diseases. The choice
			of imaging will be guided by the physician based on the individual
			patient's circumstances.
4	What diseases should be	Recommendation 8: Clinical physicians should differentiate	During the diagnostic process for osteoarthritis (OA), it's important
	distinguished from	osteoarthritis (OA) from other diseases that can cause joint pain	to differentiate it from other conditions that can cause similar
	osteoarthritis during	and functional impairment, including autoimmune arthritis,	symptoms, such as joint pain and stiffness. Here are some conditions
	clinical diagnosis?	infectious arthritis, gout, pseudogout, and joint injuries (GPS).	that should be considered:
			1. **Rheumatoid Arthritis (RA)**: This is an autoimmune disorder
			that typically affects joints symmetrically (for example, both knees
			or both hands), while OA often affects joints asymmetrically. RA also
			has systemic symptoms like general fatigue and feeling unwell,



			7. **Reactive Arthritis**: This is a form of arthritis that occurs as a reaction to an infection elsewhere in the body.
			8. <b>**</b> Other degenerative joint conditions <b>**</b> : Conditions like avascular necrosis or hip dysplasia can cause joint pain and have radiographic changes that might mimic OA.
			9. **Osteoporosis**: While osteoporosis itself does not cause joint pain, fractures due to osteoporosis can cause pain and might be mistaken for OA.
			These conditions often require different treatments than OA, so correct diagnosis is crucial for effective management. As always, if a person suspects they have OA or another joint condition, they should consult a healthcare provider for evaluation.
5	What are the treatment goals and principles for osteoarthritis?	Recommendation 9: Clinical physicians should adopt a stepped and individualized treatment approach based on the patient's age, gender, body mass index (BMI), location and severity of lesions, aiming to reduce pain, improve or restore joint function, enhance the patient's quality of life, delay disease progression, and correct	Osteoarthritis (OA) is a chronic degenerative disease that cannot be cured, so treatment goals and principles focus on managing symptoms and improving quality of life. Here are the main treatment goals for OA:
		deformities (GPS).	<ol> <li>**Pain management**: The most immediate goal is usually to reduce pain to a manageable level.</li> <li>**Maintain/immediate function**. This impelves maintaining</li> </ol>
			2. "Maintain/improve joint function": This involves maintaining or improving the range of motion of the joint and strength of the surrounding muscles.

			3. **Minimize disability**: This goal is to keep the person as mobile and functional as possible to enable them to carry out their daily
			activities. 4. **Slow disease progression**: While we can't stop OA, certain
			strategies can help slow down its progression.
			5. **Educate and involve the patient in the management of their disease**: OA requires long-term self-management, so it's important
			to educate patients about the disease and involve them in the
			management process.
			It's important to remember that treatment plans are individualized,
			based on the person's age, overall health, severity and location of OA,
			and personal preferences. A combination of treatments is often used,
			and it might take some trial and error to find what works best for each
			individual.
6	What is the basic treatment	Recommendation 10: It is strongly recommended to prioritize	The basic treatment for osteoarthritis (OA) typically involves a
	of osteoarthritis ?	basic treatment options for patients with osteoarthritis (OA),	combination of non-pharmacological and pharmacological strategies
		including health education, exercise therapy, physical therapy, and	designed to relieve symptoms, improve joint function, and slow
		assistive support (strong recommendation, evidence level: B).	disease progression. Here are the fundamental aspects of OA
			treatment:
			1. **Non-pharmacological treatments:**

	**Eversise*** Decular physical activity being maintain joint
	- Exercise . Regular physical activity helps maintain joint
	but the strength, reduces pain, and improves overall nearth.
	Both aerobic activities (like walking, biking, or swimming) and
	strength training can be beneficial. A physical therapist can provide
	a personalized exercise plan.
	- **Weight management**: If a patient is overweight, losing
	weight can reduce stress on weight-bearing joints and decrease pain.
	A healthy diet and regular exercise are key components of weight
	management.
	- **Physical therapy**: Physical therapists can provide
	treatments to relieve pain, improve movement, and strengthen
	muscles around affected joints. They might also recommend assistive
	devices, such as braces, shoe inserts, or canes, to help take pressure
	off affected joints and improve mobility.
	- **Patient education and self-management programs**:
	Understanding the disease and learning how to manage it can help
	improve quality of life and slow the progression of OA.
	2. **Pharmacological treatments:**
	- **Pain relievers**: Over-the-counter (OTC) pain relievers like
	acetaminophen (Tylenol) or nonsteroidal anti-inflammatory drugs
	(NSAIDs) like ibuprofen (Advil, Motrin) are often the first line of
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			treatment for OA pain. Topical creams or gels containing NSAIDs or
			capsaicin might also be used.
			- **Prescription medications**: If OTC medications aren't sufficient, stronger medications may be prescribed, such as prescription NSAIDs, tramadol, or in some cases, opioids. However, opioids are generally considered a last resort due to their risk of dependency and other side effects.
			3. **Complementary and alternative therapies:** Some people with
			OA find relief with alternative therapies, such as acupuncture,
			massage, tai chi, or yoga. However, the effectiveness of these
			treatments can vary from person to person.
			These are the basic treatment strategies for OA. For more advanced disease or in cases where these treatments aren't effective, other options like injections or surgery might be considered. Treatment is individualized to the person's symptoms, severity of disease, overall health, and personal preferences. As always, treatment decisions should be made in collaboration with a healthcare provider.
7	What is the efficacy of	Recommendation 11: Aerobic exercise and aquatic exercise have	Exercise therapy is considered a cornerstone of osteoarthritis (OA)
	exercise therapy for	been shown to improve pain and function in patients with knee and	management. Numerous studies have shown its efficacy in reducing
	osteoarthritis?	hip osteoarthritis. It is recommended that clinicians develop	pain, improving physical function, and enhancing quality of life for
		individualized exercise therapy plans based on the patient's	individuals with OA. Here's how exercise therapy can benefit those
		condition (Recommendation strength: strong recommendation,	with OA:
		Evidence grade: B).	

	Recommendation 12: Hand exercises can alleviate pain and joint	1. **Pain reduction**: Regular exercise has been shown to decrease
	stiffness in patients with hand osteoarthritis (OA). It is	pain in individuals with OA. The exact mechanisms for this pain
	recommended that patients with hand OA engage in hand exercises	reduction are not entirely understood, but it's thought that exercise
	(Recommendation strength: Strongly recommend, Evidence level:	may help by increasing blood flow to the joints, strengthening the
	C).	muscles that support the joints, and releasing natural pain-relieving
		endorphins.
		2. **Improved physical function**: Exercise can help improve
		flexibility, strength, and balance, all of which can help increase range
		of motion and joint stability, making daily activities easier to
		perform. This can be especially important for individuals with OA,
		who often experience stiffness and decreased joint function.
		3. **Weight management**: If a person is overweight or obese,
		exercise can help manage weight, which reduces pressure on weight-
		bearing joints and can decrease pain.
		4. **Better mood and quality of life**: Regular physical activity is
		known to have benefits for mental health, including reduced
		symptoms of depression and anxiety. This can be particularly
		beneficial for people with chronic conditions like OA, as pain and
		physical limitations can often lead to psychological distress.
		5. **Potentially slow disease progression**: While more research is
		needed in this area, some studies suggest that regular exercise may
		help slow the progression of OA by maintaining healthy joint

			cartilage and delaying further joint damage.
			Different types of exercises can be beneficial, including:
			- **Aerobic exercise**: Low-impact activities like walking, cycling, swimming, and water aerobics can improve cardiovascular health without putting undue stress on the joints.
			- **Strength training**: Strengthening the muscles that support the affected joint can help improve stability and reduce pain.
			- **Flexibility and balance exercises**: These can help maintain joint mobility, reduce stiffness, and prevent falls.
			Before starting an exercise program, it's important for those with OA to talk with their healthcare provider or a physical therapist. They can provide guidance on which types of exercises are safe and
			appropriate based on the person's condition, overall health, and physical capabilities. They can also help ensure the exercises are being done correctly to avoid injury and get the most benefit. As with
			any treatment, individual responses can vary.
8	What is the effectiveness	Recommendation 13: Interferential current electrical stimulation	Physical therapy is widely recognized as an effective treatment for
	of physical therapy for	and pulsed ultrasound therapy may be considered for relieving	managing the symptoms of osteoarthritis (OA). The goal of physical
	osteoarthritis?	pain symptoms in patients with knee osteoarthritis	therapy in OA is to reduce pain, improve mobility, increase strength,
		(Recommendation strength: weak recommendation, Evidence	and enhance the ability to do everyday activities. Here's how physical
		grade: B).	therapy can help those with OA:

	Recommendation 14: Hydrotherapy, cryotherapy, thermotherapy,	
	mud bath therapy, radiofrequency ablation, and other	1. **Pain reduction**: Physical therapists can use a variety of
	transcutaneous electrical nerve stimulation methods have shown	techniques to help reduce pain, including therapeutic exercises,
	some effectiveness in the treatment of osteoarthritis. However,	manual therapy (like massage and joint manipulation), and
	there is currently a lack of standardized protocols. Clinicians may	modalities like heat, cold, ultrasound, or electrical stimulation.
	use these therapies at their discretion (Recommendation strength:	
	weak recommendation, Evidence grade: C).	2. **Improved physical function**: Therapists provide exercises
		designed to improve range of motion, flexibility, balance,
		coordination, and strength, all of which can help individuals with OA
		move better and do their daily activities more easily.
		3. **Strength training**: Strengthening exercises target muscles that
		support the affected joints, which can help relieve pain and improve
		function.
		4. **Education**: Physical therapists can provide education on ways
		to manage symptoms, joint protection techniques, the use of assistive
		devices (like canes or shoe inserts), and the importance of
		maintaining a healthy lifestyle, including regular physical activity
		and a balanced diet.
		5. **Weight management**: For individuals who are overweight,
		physical therapists can provide guidance on safe exercises to help
		with weight loss, which can help reduce stress on weight-bearing
		joints.

			6. **Gait analysis and correction**: If OA is affecting the lower
			extremities, therapists can analyze a person's gait and suggest
			corrections to reduce strain on the joints when walking.
			Research supports the effectiveness of physical therapy for OA. A
			systematic review published in the Journal of Rheumatology in 2015
			concluded that exercise programs delivered by physical therapists
			provide both short-term and long-term benefits for people with knee
			OA including reduced knee pain and improved physical function
			and quality of life
			and quarty of me.
			As with any treatment, individual responses to physical therapy can
			vary It's important for the physical therapist and patient to
			communicate regularly about the effectiveness of the treatment and
			wells adjustments as needed. It's also important to remember that
			make adjustments as needed. It's also important to remember that
			successful physical therapy requires active participation from the
			patient, including doing prescribed exercises at nome and making
0	TT 1 11		lifestyle changes as recommended.
9	How should	Recommendation 15: It is strongly recommended to use topical	Pharmacological treatment for osteoarthritis (OA) is typically
	pharmacological treatment	non-steroidal anti-inflammatory drugs (NSAIDs) as first-line	selected based on several factors, including the severity of the
	for osteoarthritis be	treatment for pain in patients with knee osteoarthritis, especially	patient's symptoms, their overall health status, the presence of any
	selected?	those with coexisting gastrointestinal, cardiovascular diseases, or	other medical conditions, potential side effects of the medication, and
		frailty (Recommendation strength: strong recommendation,	the patient's personal preferences.
		Evidence grade: A).	
		Recommendation 16: It is recommended for patients with	1. **Over-the-Counter (OTC) Medications**: For mild to moderate
		persistent or moderate to severe pain in osteoarthritis to choose	OA pain, over-the-counter pain relievers like acetaminophen

		oral NSAIDs, including non-selective NSAIDs and selective	(Tylenol) or nonsteroidal anti-inflammatory drugs (NSAIDs) like
		cyclooxygenase-2 (COX-2) inhibitors, but caution should be taken	ibuprofen (Advil, Motrin) are often the first line of treatment. Topical
		regarding gastrointestinal and cardiovascular adverse events	creams or gels containing NSAIDs or capsaicin may also be used.
		(Recommendation strength: strong recommendation, Evidence	
		grade: B).	2. **Prescription Medications**: If OTC medications aren't
		Recommendation 17: It is not recommended to use strong opioids	sufficient, stronger medications may be prescribed, such as
		for pain management in osteoarthritis, and cautious use of weak	prescription-strength NSAIDs, COX-2 inhibitors like celecoxib
		opioids such as tramadol is advised (Recommendation strength:	(Celebrex), tramadol, or in some cases, opioids. However, opioids
		strong recommendation, Evidence grade: C).	are generally considered a last resort due to their risk of dependency
		Recommendation 18: For patients with long-term, chronic,	and other side effects.
		widespread pain and/or comorbid depression in osteoarthritis, the	
		use of anxiolytic medications such as duloxetine is recommended	3. **Injections**: If oral medications are not enough, injections of
		(Recommendation strength: strong recommendation, Evidence	corticosteroids or hyaluronic acid into the affected joint might be
		grade: B).	considered. These can provide temporary relief from symptoms.
			4. **Topical Agents**: For some patients, particularly those who
			cannot tolerate oral NSAIDs due to gastrointestinal issues, topical
			NSAIDs can be a good option.
			The potential benefits of each medication need to be weighed against
			the potential risks. For example, while NSAIDs can be effective in
			managing OA pain, they also come with risks, such as
			gastrointestinal bleeding, cardiovascular problems, and kidney
			damage, especially with long-term use or in individuals with existing
			health problems.
10	What is the efficacy and	Recommendation 19: Clinicians should exercise caution when	Intra-articular drug therapy, which involves injecting medications

safety of intra-articular	using intra-articular corticosteroid injections for the treatment of	directly into the joint, is a common treatment option for osteoarthritis
drug therapy for treating	osteoarthritis. Although they can provide rapid pain relief and	(OA), particularly for patients who haven't responded well to oral
osteoarthritis?	improve joint function, there is a risk of accelerating cartilage loss	medications or have significant side effects from these medications.
	with long-term and repeated use (Recommendation strength:	The most commonly used intra-articular therapies for OA are
	strong recommendation, Evidence grade: B).	corticosteroids and hyaluronic acid.
	Recommendation 20: Clinicians may consider using intra-articular	**Corticosteroids**: Corticosteroids (such as triamcinolone or
	hyaluronic acid injections for the treatment of osteoarthritis. It can	methylprednisolone) have strong anti-inflammatory effects and can
	provide short-term pain relief, improve joint function, and reduce	provide rapid, short-term relief of OA pain. A review of studies
	the need for analgesic medications, with a higher level of safety	published in the Cochrane Database of Systematic Reviews in 2015
	(Recommendation strength: weak recommendation, Evidence	found that intra-articular corticosteroids improved pain in people
	grade: B).	with knee OA for up to two weeks, but the effect diminished after
		that.
		The main risks of corticosteroid injections are joint infection and
		damage to the joint tissue, particularly with frequent injections.
		There can also be temporary pain and swelling in the joint after the
		injection. Systemic side effects (like elevated blood sugar) can occur
		but are less common than with oral corticosteroids.
		**Hyaluronic Acid**: Hyaluronic acid is a substance that is naturally
		present in the joint fluid and helps lubricate and cushion the joint. In
		people with OA, the quality and quantity of hyaluronic acid can be
		diminished, so injecting it into the joint can help improve joint
		function and reduce pain.

			A 2012 meta-analysis published in the Annals of Internal Medicine
			found that hyaluronic acid injections provided a small to moderate
			improvement in pair and function in people with knee $\Omega \Lambda$ but the
			1. 1. 1. C.
			clinical significance of these effects was uncertain.
			As with corticosteroid injections, the main risks of hyaluronic acid
			injections are joint infection and joint damage. Pain and swelling at
			the injection site can also occur.
			In general, while intra-articular therapies can provide relief from OA
			symptoms, they do not slow the progression of the disease.
			Therefore, they are typically used in conjunction with other
			treatments, such as oral medications, exercise, and physical therapy.
			As with any treatment, the decision to use intra-articular therapy
			should be made through shared decision-making between the patient
			and their doctor taking into account the severity of the national's
			summtand the notantial herefits and risks of the treatment the
			symptoms, the potential benefits and madiantians, and the notional
			patient's other health conditions and medications, and the patient's
			personal preferences.
11	What is the efficacy and	Recommendation 21: Topical and oral traditional Chinese	Traditional Chinese Medicine (TCM) has been used for centuries to
	safety of traditional	medicine (TCM) can provide pain relief and improve joint	treat a variety of conditions, including osteoarthritis (OA). TCM
	Chinese medicine (TCM)	function in osteoarthritis, with a higher level of safety. Clinicians	approaches to OA often include herbal remedies, acupuncture, Tai
	treatment for	may consider using them, but caution should still be taken to	Chi, and other mind-body practices. However, while many patients
	osteoarthritis?	prevent skin allergies when using topical applications	report relief from these treatments, the scientific evidence varies, and
		(Recommendation strength: weak recommendation, Evidence	the quality of research studies can be inconsistent.

	grade: B).	
		1. **Herbal remedies**: Many different herbs are used in TCM for
	Recommendation 22: Acupuncture has been found to effectively	OA, often in complex mixtures. Some studies suggest certain herbs
	improve joint pain and function in patients with osteoarthritis, and	may have anti-inflammatory and pain-relieving effects, but more
	it is considered safe. It may be used at the clinician's discretion for	high-quality research is needed to confirm these findings and to
	the treatment of osteoarthritis (Recommendation strength: weak	assess their safety, particularly given the risks of interactions with
	recommendation, Evidence grade: B).	other medications and potential side effects.
		2. **Acupuncture**: This technique, which involves inserting thin
		needles at specific points on the body, is often used in TCM to treat
		pain. Some studies suggest acupuncture may provide some pain
		relief for OA, but results have been mixed. A systematic review
		published in the British Journal of Sports Medicine in 2020 found
		that acupuncture seemed to slightly reduce pain and improve
		function in people with OA, but the researchers noted that the effects
		were small and may not be clinically relevant. The safety of
		acupuncture is generally considered to be good when performed by
		a competent practitioner, but potential side effects include infection,
		bleeding, or injury from needles.
		3. **Tai Chi**: This mind-body practice, which involves slow,
		gentle movements and deep breathing, can help improve balance,
		strength, and flexibility. Several studies have found that Tai Chi can
		help reduce pain and improve physical function in people with knee
		OA. A systematic review and meta-analysis published in the Journal
		of Physiotherapy in 2019 concluded that Tai Chi may improve pain

			and physical function in people with OA. The safety of Tai Chi is
			generally considered good, but people with certain health conditions
			(like severe osteoporosis or heart problems) should check with their
			healthcare provider before starting Tai Chi.
			It's important to note that TCM should not replace conventional
			medical treatments for OA, but can be used as a complementary
			approach. Before starting any new treatment, including TCM, it's
			important to talk with a healthcare provider. The provider can
			provide information about potential risks and benefits and ensure the
			treatment is appropriate given the patient's overall health and
			treatment plan.
12	What are the indications	Recommendation 23: Arthroscopic surgery for the treatment of	Arthroscopic surgery involves inserting a small camera, called an
	for arthroscopic surgery in	knee osteoarthritis is only short-term effective in relieving pain	arthroscope, into the joint through a small incision to visualize,
	the treatment of	symptoms, and there is no significant difference in medium to	diagnose, and treat joint problems. While it has been commonly used
	osteoarthritis?	long-term efficacy compared to conservative treatments.	for many joint conditions, its use in treating osteoarthritis (OA) is a
		Clinicians may consider it on a case-by-case basis	matter of ongoing debate.
		(Recommendation strength: strong recommendation, Evidence	
		grade: A).	Arthroscopy can be used for OA to remove loose fragments of
		Recommendation 24: Arthroscopic debridement is recommended	cartilage, repair torn meniscus, or smooth out rough surfaces of
		for the treatment of knee osteoarthritis with locking symptoms	joints. However, it's generally not considered a first-line treatment
		(Recommendation strength: strong recommendation, Evidence	and is usually reserved for specific cases.
		grade: B).	
		Recommendation 25: For patients with shoulder osteoarthritis who	Guidelines published by various medical societies in recent years,
		are not suitable for shoulder joint replacement surgery due to age,	such as the American Academy of Orthopaedic Surgeons (AAOS)
		activity level, or personal preference after other interventions have	and the Osteoarthritis Research Society International (OARSI),

		failed arthroscopic debridement may be considered to improve	generally discourage the use of arthroscopy for degenerative knee
		symptoms (Recommendation strength: weak recommendation	disease (which includes OA) unless there are specific mechanical
		Evidence grade: D)	symptoms such as locking catching or instability that might be
		Evidence grade. D).	improved with surgery
			improved with surgery.
			Several studies and reviews, including a significant study published
			in the New England Journal of Medicine, have shown that
			arthroscopic surgery does not lead to any substantial benefits for
			most people with knee OA. In fact, in some cases, it may cause more
			harm than good due to the risks associated with surgery, such as
			infection or complications from anesthesia.
			However, every patient is unique, and the decision to proceed with
			arthroscopy should be made on a case-by-case basis, taking into
			account the specific characteristics of the patient's disease, their
			overall health, and their personal preferences. The decision should
			be made in consultation with a knowledgeable orthopedic surgeon,
			and the patient should be fully informed about the potential benefits
			and risks.
			Lastly, remember that while surgery can help manage the symptoms
			$\Delta f \Omega A$ it doesn't cure the disease. Even after surgery patients will
			still need to engage in other treatment strategies such as physical
			sum need to engage in other treatment strategies such as physical
			inerapy, weight management, and possibly medications to manage
			symptoms and prevent further joint damage.
13	What are the indications	Recommendation 26: For patients with single-compartment	Osteotomy is a surgical procedure that involves cutting and

for osteotomy in the	osteoarthritis of the tibiofemoral joint, especially in younger	reshaping of bone. It is considered for the treatment of osteoarthritis
treatment of osteoarthritis?	individuals with high activity levels and poor alignment, clinicians	in certain cases, with key indications including:
	may consider osteotomy procedures such as high tibial osteotomy,	
	distal femoral osteotomy, or proximal fibular osteotomy to	1. **Younger Age**: Osteotomy is often considered for younger
	improve joint function and alleviate pain (Recommendation	patients who have arthritis, typically those under 60-65 years of age.
	strength: weak recommendation, Evidence grade: C).	This is because joint replacement surgeries, although effective, may
		wear out over time and may not be suitable for younger, more active
	Recommendation 27: For patients with mild hip osteoarthritis due	individuals.
	to developmental dysplasia of the acetabulum, clinicians may	
	consider acetabular osteotomy on a case-by-case basis	2. **Unicompartmental (one-sided) Osteoarthritis**: If the arthritis
	(Recommendation strength: weak recommendation, Evidence	only affects one side of the knee (medial or lateral compartment), an
	grade: D).	osteotomy may help shift the body's weight off the damaged side.
		3. **Early/Moderate Disease**: Osteotomy is usually considered in
		the early to moderate stages of osteoarthritis, before the joint damage
		becomes too extensive.
		4. **Realignment Need**: Osteotomy can be useful for realigning a
		joint that has become deformed due to arthritis.
		5. **Active Lifestyle**: For people who participate in high-impact
		activities, osteotomy might be a better option as compared to joint
		replacement which may be subject to faster wear and tear.
		It's important to note that while osteotomy can effectively relieve
		pain and improve function in selected patients, it doesn't stop the

			progression of arthritis. Therefore, patients may still require a joint
			replacement in the future. As always, the decision to proceed with
			osteotomy should be made in consultation with a healthcare provider.
14	What are the indications	Recommendation 28: Total joint replacement surgery is	Total joint replacement surgery, also known as arthroplasty, is a
	for total joint replacement	recommended for patients with severe osteoarthritis who have not	surgical procedure where the worn-out or damaged surfaces of the
	surgery?	responded to other interventions. Factors such as the patient's	joint are removed and replaced with artificial parts. The most
		specific condition, subjective preferences, and expectations should	common joints replaced are the hip and knee. Here are the typical
		also be taken into consideration (Recommendation strength:	indications for total joint replacement surgery:
		strong recommendation, Evidence grade: B).	
			1. **Severe Pain**: When pain in the affected joint is severe enough
			to affect daily life activities such as walking, climbing stairs, or even
			resting, and when this pain isn't relieved by non-surgical treatments.
			2. **Joint Stiffness**: Significant reduction in the range of motion
			of the joint that impedes routine tasks or activities.
			3. **Moderate to Severe Arthritis**: This could be osteoarthritis,
			rheumatoid arthritis, or post-traumatic arthritis that has not
			responded well to conservative management.
			4. **Joint Deformity**: Visible deformation of the joint may warrant
			joint replacement.
			5. **Failed previous joint surgery**: If previous joint-preserving
			surgery has failed to relieve symptoms or if a previous joint
			replacement has failed.

		6. <b>**</b> Poor Quality of Life <b>**</b> : Overall quality of life is significantly impacted due to constant pain and reduced joint mobility.
		7. <b>**</b> Bone Damage <b>**</b> : X-rays or other imaging tests shows advanced arthritis or significant bone damage.
15 What are the indications for partial joint replacement surgery?	Recommendation 29: For patients with isolated patellofemoral osteoarthritis who have not responded well to other treatments, patellofemoral joint replacement surgery is recommended (Recommendation strength: strong recommendation, Evidence grade: C). Recommendation 30: For patients with symptomatic single- compartment tibiofemoral osteoarthritis who meet the indications, unicompartmental knee replacement surgery is recommended (Recommendation strength: strong recommendation, Evidence grade: C).	<ul> <li>The decision for total joint replacement should be a mutual one between the patient and doctor, taking into account the patient's age, overall health, bone density, and the impact of symptoms on their quality of life. A thorough discussion of the risks and benefits of surgery, as well as potential alternatives, should always precede the decision to proceed with joint replacement surgery.</li> <li>Partial joint replacement surgery, also known as unicompartmental or hemiarthroplasty, is a surgical procedure where only the damaged part of the joint is replaced with an artificial implant, preserving the remaining healthy parts. This procedure is commonly performed on knees and hips. Here are some key indications for partial joint replacement surgery:</li> <li>1. **Unicompartmental Disease**: The primary indication for partial joint replacement is when arthritis or damage is confined to one compartment (or section) of the joint. For instance, in the knee, if only the medial (inner) or lateral (outer) compartment is affected, a partial knee replacement may be considered.</li> </ul>

2. **Preservation of Healthy Tissue**: When a significant amount
of the joint tissue is still healthy, a partial replacement may be
preferred to preserve as much of the natural joint as possible.
3. **Age** and **Activity Level**: Partial joint replacement can
sometimes be suitable for younger, more active patients because it
may preserve more joint function and feel more natural than a total
replacement. It also allows for easier conversion to a total joint
replacement later, if necessary.
4. **Less Severe Symptoms**: If symptoms do not significantly
impair the patient's quality of life and are less severe, a partial
replacement may be adequate to alleviate discomfort.
5. **Bone Quality**: Adequate bone quality is needed to support the
implant. This makes partial replacements more suitable for those
without extensive bone loss or deformities.
It's important to remember that each patient's situation is unique, and
a thorough discussion with a healthcare provider is essential to
determine the best treatment option. Factors such as overall health,
lifestyle, disease progression, and personal preferences should all be
taken into account when considering joint replacement surgery.