Exosomes for Knee Arthritis: Does It Really Work? Transcript

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Exosomes Explained for Knee Pain and More

If your If your knee hurts every time knee hurts every time you get up from a chair and you've been told it's and you've been told it's "bone to bone," "bone to bone," you've probably been looking for you've probably been looking for something more than something more than another round of another round of steroid injections.

steroid injections. The same goes for The same goes for skin that has lost its skin that has lost its elasticity, a scar that elasticity, a scar that won't heal, won't heal, or an injury that or an injury that just won't go away. Somewhere along the way,. Somewhere along the way, you may have heard about you may have heard about potential potential potential treatments treatments treatments offered by billions, offered by billions, and sometimes trillions, of and sometimes trillions, of exosomes. By the end of exosomes. By the end of today's video, today's video, I want you to I want you to know how know how exosomes work, exosomes work, why they why they are being studied, and what you are being studied, and what you should ask before should ask before introducing them into your introducing them into your body. I am Dr.

body. I am Dr. Greg Jones, a naturopath Greg Jones, a naturopath and founder of and founder of Innovate Health Center here in Innovate Health Center here in Phoenix, Phoenix, Phoenix, Arizona. On my Arizona. On my channel, I analyze channel, I analyze hormones, peptides, and hormones, peptides, and longevity medicine, longevity medicine, and today we will and today we will delve delve delve into the topic of exosomes in detail. But into the topic of exosomes in detail. But before we begin, before we begin, I want to remind everyone I want to remind everyone that this is educational that this is educational content and not medical content and not medical advice, so advice, so please consult please consult your doctor about your doctor about anything you are anything you are considering. This video considering.

What Exosomes Are and How They Work

This video is not a call to is not a call to immediately start immediately start using using using exosomes. So, what are exosomes. So, what are exosomes? Imagine exosomes? Imagine an exosome as an exosome as a bubble, hundreds of a bubble, hundreds of times narrower than a times narrower than a human hair, that is human hair, that is released by a cell.

released by a cell. It contains proteins, It contains proteins, fats, and small fats, and small genetic genetic genetic messages messages messages called microRNAs. So, imagine a. So, imagine a sealed envelope.

sealed envelope. The cell writes a note, The cell writes a note, puts it in this puts it in this envelope, and sends it to a envelope, and sends it to a neighboring cell or neighboring cell or tissue at the other tissue at the other end of the body. Not every end of the body. Not every cell type does this, cell type does this, but in regenerative but in regenerative medicine, most of the medicine, most of the exosomes discussed come from exosomes discussed come from stem cells.

stem cells. So how did we learn So how did we learn about exosomes? In the about exosomes? In the early 1980s, early 1980s, researchers researchers researchers studying young studying young red blood cells in sheep red blood cells in sheep noticed that the cells noticed that the cells were shedding small were shedding small vesicles that carried a vesicles that carried a surface protein that the cells no longer needed. In 1987, the same cells no longer needed. In 1987, the same laboratory laboratory laboratory named these vesicles named these vesicles exosomes. And for about exosomes. And for about 20 years, experts 20 years, experts treated them as treated them as cellular cellular cellular garbage bags, a way for garbage bags, a way for cells to take out cells to take out waste. Then, in waste. Then, in 2007, a Swedish group 2007, a Swedish group showed that these sacs showed that these sacs actually contain actually contain working genetic working genetic messages that messages that another cell can another cell can read and read and use. The trash use. The trash turned out to be treasure. And that's why turned out to be treasure. And that's why you you you hear so much about hear so much about

exosomes today. So, exosomes today.

How Exosomes Deliver Their Cargo

So, let's dig a little deeper into let's dig a little deeper into our our our postal analogy. This is postal analogy. This is how mail is sent how mail is sent. Inside the. Inside the cell, small cell, small pockets bend pockets bend inward and inward and trap proteins, trap proteins, genetic genetic genetic messages, and fats.

messages, and fats. These pockets These pockets move to the edge of move to the edge of the cell, fuse the cell, fuse with the outer with the outer wall, and exit wall, and exit as exosomes.

as exosomes. Once outside Once outside the cell, the exosome the cell, the exosome enters a neighboring enters a neighboring cell, combining cell, combining with surface with surface proteins like a key with a proteins like a key with a lock, or lock, or being absorbed entirely, being absorbed entirely, after which it releases after which it releases its contents.

its contents. The most important The most important The most important cargo is microRNA. cargo is microRNA. So, imagine a microRNA So, imagine a microRNA as a as a brightness regulator for a gene, brightness regulator for a gene, making its making its activity higher or activity higher or lower without changing the lower without changing the gene itself. In gene itself. In laboratory laboratory laboratory studies, studies, studies, exosomes from exosomes from mesenchymal mesenchymal mesenchymal stem cells— regenerative regenerative regenerative cells found in cells found in bone marrow, bone marrow, fat, and fat, and umbilical cord tissue— suppressed suppressed suppressed inflammatory signals, inflammatory signals, directed immune directed immune cells to a more cells to a more quiescent state, quiescent state, stimulated stimulated stimulated collagen production, collagen production, and supported the growth of and supported the growth of new blood new blood vessels. And chondrocytes vessels. And chondrocytes seem to turn on seem to turn on genes that can genes that can build cartilage and build cartilage and turn off an enzyme turn off an enzyme that breaks it down. In animal studies, some animal studies, some exosomes exosomes exosomes have even crossed the have even crossed the have even crossed the blood-brain blood-brain blood-brain barrier, so barrier, so researchers are studying researchers are studying them for the treatment of them for the treatment of neurodegenerative neurodegenerative neurodegenerative conditions. People conditions. People often ask now whether an exosome can be compared to a an exosome can be compared to a stem cell. A better comparison is a working kitchen and is a working kitchen and one takeout order one takeout order. The stem. The stem cell is the kitchen.

cell is the kitchen. It is alive, capable of It is alive, capable of reproducing and reproducing and reacting to what is reacting to what is happening around it. An exosome is like a single. An exosome is like a single order that the kitchen order that the kitchen sends to the customer. And sends to the customer. And most of what most of what stem stem stem cells do comes from cells do comes from the signals they the signals they release, not from the release, not from the cell cell cell settling down and becoming new settling down and becoming new tissue. And this is what tissue. And this is what got researchers interested in got researchers interested in got researchers interested in signals as such.

signals as such. And because exosomes And because exosomes cannot divide, cannot divide, concerns about concerns about unwanted unwanted unwanted cell or tissue growth cell or tissue growth are minimized. They are minimized.

Clinical Applications in Regenerative Medicine

They are also thought to be are also thought to be more quickly excreted from more quickly excreted from the body than living the body than living cells, but they are more difficult cells, but they are more difficult to standardize, to standardize, as no two as no two batches grown from batches grown from living cells living cells can be guaranteed to be the can be guaranteed to be the same. So what do same. So what do people people people use use use exosomes for? Let's start with exosomes for? Let's start with regenerative regenerative regenerative injections. Exosomes injections. Exosomes are used in are used in regenerative regenerative regenerative medicine for arthritis, medicine for arthritis, especially when especially when injections of injections of platelet-rich plasma (

PRP) or hyaluronic PRP) or hyaluronic acid have stopped acid have stopped helping. The hope is helping. The hope is that that that exosomes can exosomes can calm inflammation calm inflammation in the joint, protect the remaining cartilage cells, and remaining cartilage cells, and slow the action of slow the action of enzymes that enzymes that destroy cartilage. They destroy cartilage. They are called are called are called matrix matrix matrix metalloproteinases. The metalloproteinases. The same approach same approach applies to applies to inflamed tendons, inflamed tendons, rotator rotator rotator cuff tears, cuff tears, ligament injuries, ligament injuries, post-surgery recovery, and post-surgery recovery, and intervertebral intervertebral intervertebral disc injuries. The second major disc injuries. The second major area is skin.

Exosomes are thought to awaken Exosomes are thought to awaken fibroblasts—cells fibroblasts—cells that produce that produce collagen, recruit collagen, recruit new blood new blood vessels, and build the vessels, and build the framework upon which the framework upon which the skin heals. This is skin heals. This is why they are effective why they are effective in treating in treating chronic wounds and chronic wounds and ulcers that do not ulcers that do not heal.

heal. heal. Exosomes Exosomes Exosomes are also used for are also used for scars, scars, scars, skin aging, and recovery skin aging, and recovery after procedures such after procedures such as as as microneedling or laser microneedling or laser rejuvenation.

rejuvenation. rejuvenation. Exosomes are also Exosomes are also promising in promising in the field of the field of hair restoration: they are injected hair restoration: they are injected directly into the directly into the subcutaneous layer, where subcutaneous layer, where the follicle is located, or during, or during microneedling microneedling microneedling therapy procedures. Next—the lungs. Exosomes can be. Exosomes can be turned into a mist turned into a mist and inhaled through a and inhaled through a nebulizer; it can nebulizer; it can calm inflammation calm inflammation and reduce and reduce oxidative stress oxidative stress and damage in and damage in conditions such as COPD, conditions such as COPD, asthma, and pulmonary asthma, and pulmonary fibrosis. The most fibrosis. The most ambitious claim, however, ambitious claim, however, concerns the brain.

concerns the brain. Because they are so Because they are so small, some exosomes small, some exosomes can cross the can cross the blood-brain blood-brain blood-brain barrier, and there is hope that barrier, and there is hope that they will help they will help protect neurons, protect neurons, clear the brain of clear the brain of abnormal proteins abnormal proteins such as amyloid, and such as amyloid, and support support support memory and motor memory and motor function. You may function. You may hear about the practice of hear about the practice of combining them with other combining them with other cell therapies. Exosomes act. Exosomes act quickly, but not for long.

quickly, but not for long. The cells stay The cells stay in the body longer, in the body longer, so some doctors so some doctors use use use both. Exosomes for a both. Exosomes for a quick signal, and quick signal, and stem cells for a long-term effect.

for a long-term effect.

What the Human Studies Show

To be clear: To be clear: these are just potential these are just potential benefits. What benefits. What do do do human studies show? The human studies show? The most prominent most prominent most prominent human study is a is a phase II trial in phase II trial in 102 people with respiratory 102 people with respiratory failure due to failure due to COVID, which compared COVID, which compared infusions of exosomes from bone marrow stem cells and bone marrow stem cells and placebo. It was placebo. It was proven to be proven to be safe, but safe, but the difference in overall the difference in overall survival was not survival was not statistically significant. But in adults aged. But in adults aged 65 and younger, the 60- day mortality day mortality was about 50% in the was about 50% in the placebo group versus placebo group versus about 90% in the about 90% in the high-dose high-dose high-dose exosome group. This subgroup exosome group. This subgroup was small and the was small and the analysis was done analysis was done after the fact, so it after the fact, so it was a signal, not proof. A. A 2025 knee osteoarthritis study 2025 knee osteoarthritis study involving 41 involving 41 patients patients patients

receiving three doses of receiving three doses of cord blood exosomes found no side found no side effects over 9 effects over 9 months, and months, and MRI findings and clinical MRI findings and clinical scores scores scores improved. When it improved. When it comes to skin, the comes to skin, the best best best evidence comes from a evidence comes from a 2025 laboratory study 2025 laboratory study in which human collagen-producing cells multiplied multiplied faster and faster and showed fewer showed fewer signs of aging after being injected with umbilical cord exosomes. What signs of aging after being injected with umbilical cord exosomes.

FDA Regulatory Status Update

What about regulation? Here is the about regulation? Here is the situation as of situation as of October 2026. October 2026. No exosome No exosome product is product is FDA-approved to treat any disease, any disease, so any so any use outside of FDA-authorized studies is at FDA-authorized studies is at best “ off-label.” off-label.” off-label.” This has been going on This has been going on since 2019, and the FDA since 2019, and the FDA continues to send warning letters, warning letters, including in August including in August 2026 regarding another 2026 regarding another product that product that was marketed as was marketed as exosomes but did exosomes but did not appear to contain any not appear to contain any isolated exosomes. And isolated exosomes. And when a website says " FDA registered," that FDA registered," that only means only means paper registration, paper registration, not approval. I not approval. I understand. Choosing understand. Choosing dietary supplements dietary supplements can be confusing.

can be confusing. There are hundreds of There are hundreds of brands, conflicting brands, conflicting claims, and no claims, and no way way way to know what is truly to know what is truly beneficial and what beneficial and what will actually change will actually change your health your health for the better. So I for the better. So I created created created Dr.

Dr. Dr. Jones Supplement Store. Every product Jones Supplement Store. Every product in the store for in the store for energy, energy, energy, gut health, sleep, gut health, sleep, hormone optimization, recovery, and, recovery, and more is personally more is personally reviewed, reviewed, reviewed, tested, and tested, and recommended by me.

recommended by me. These are the drugs that I These are the drugs that I use and use and recommend to my recommend to my patients, friends, and patients, friends, and family. So go family. So go to drjonesupplements.com, to drjonesupplements.com, sign up for my sign up for my newsletter, and you'll newsletter, and you'll get 10% off your get 10% off your first order. You will first order. You will also receive also receive exclusive exclusive exclusive protocols and insights protocols and insights that I share only that I share only with my community.

with my community. So let's cut out the unnecessary and So let's cut out the unnecessary and focus on what focus on what really works. really works.

What Is Actually in the Vial

So, let's So, let's talk about what's talk about what's in a vial of in a vial of exosomes. You exosomes. You will see advertisements with will see advertisements with 100 billion exosomes 100 billion exosomes or trillions per or trillions per vial, as if a higher vial, as if a higher number means a number means a stronger effect. This stronger effect. This number is usually number is usually taken from a taken from a standard standard standard particle counter, particle counter, which counts everything which counts everything floating in a liquid within a floating in a liquid within a certain certain certain size range. It's like size range. It's like counting everything that's counting everything that's floating in a pool and is floating in a pool and is about the about the size of a beach size of a beach ball. You count ball. You count beach balls, but beach balls, but also also also balloons, balloons, balloons, pool toys, and anything pool toys, and anything else that's out there. In else that's out there. In the vial, such the vial, such particles include particles include fat protein fat protein particles, particles, particles, protein aggregates, and protein aggregates, and cell fragments.

cell fragments. Particle counting shows that Particle counting shows that something is there, but something is there, but cannot confirm that cannot confirm that it is an exosome or that it is an exosome or that it is doing

anything at all it is doing anything at all. And that. And that brings us to brings us to three terms that are three terms that are used used used interchangeably, even though that's interchangeably, even though that's incorrect. Let's incorrect. Let's go back to our go back to our analogy. An exosome is a sealed is a sealed envelope. The secret is envelope. The secret is like a whole like a whole mailbox: envelopes of mailbox: envelopes of all sizes plus all sizes plus letters without envelopes letters without envelopes that the cells that the cells secrete themselves, which are secrete themselves, which are growth factors and other growth factors and other signaling proteins signaling proteins along with the "packaging." along with the "packaging." A product can be A product can be mostly secretome mostly secretome and growth factors, and growth factors, but still have but still have the label “exosomes”.

the label “exosomes”. And that And that 2026 FDA warning letter 2026 FDA warning letter indicated that some indicated that some products products products marketed as marketed as exosomes were made by exosomes were made by a process that did a process that did not appear to release exosomes at all not appear to release exosomes at all. Then there's everything else. Then there's everything else contained in contained in the bottle. The cells the bottle.

Questions to Ask Before Treatment

The cells grow in a nutrient grow in a nutrient medium of medium of amino acids, sugars, and amino acids, sugars, and whey, and unless whey, and unless the manufacturer removes it the manufacturer removes it, some of, some of that broth that broth ends up in the liquid ends up in the liquid that keeps the product that keeps the product frozen and frozen and stable. So, what stable. So, what should an exosome should an exosome analysis certificate show analysis certificate show? It should? It should indicate the source of indicate the source of the cells, how they were the cells, how they were grown, grown, grown, the results of the results of donor screening, and how donor screening, and how the exosomes were the exosomes were separated from separated from everything else. You everything else. You have to confirm have to confirm the identity with the identity with the identity with protein markers that are protein markers that are inherent to inherent to inherent to exosomes and those that exosomes and those that shouldn't shouldn't shouldn't be there. And size and be there. And size and quantity alone do not provide quantity alone do not provide such confirmation. It should also. It should also include a include a purity indicator, such as purity indicator, such as the number of particles the number of particles per microgram of protein, and per microgram of protein, and ideally, an ideally, an electron electron electron microscope image. Safety microscope image. Safety should include should include testing for testing for sterility, sterility, sterility, endotoxins, and endotoxins, and mycoplasma. Additionally, you should see, you should see stability studies confirming the expiration date and a expiration date and a batch number that can be batch number that can be traced back to traced back to the manufacturer. Some the manufacturer. Some suppliers suppliers suppliers provide a reference provide a reference guide listing particle counts, particle counts, size ranges, size ranges, sterility panels, and sterility panels, and protein tables. You protein tables. You should also know that should also know that exosomes contain exosomes contain universal universal universal membrane markers membrane markers such as CD9, CD63, and CD81.

such as CD9, CD63, and CD81. Cytosolic markers, Cytosolic markers, as well as specific as well as specific cell markers that cell markers that reflect reflect reflect their tissue of origin. A their tissue of origin. A certificate of analysis certificate of analysis should contain should contain more than just a more than just a reference guide.

reference guide. And that's what you And that's what you should ask when should ask when considering an considering an considering an exosome supplier.

exosome supplier. Back to Back to safety: the problem is safety: the problem is that the FDA keeps that the FDA keeps making remarks, and making remarks, and it's not so it's not so much about the much about the exosomes themselves, but about exosomes themselves, but about how the products how the products are made and are made and processed.

processed. processed. Warning Warning Warning letters were sent to letters were sent to companies that failed companies that failed to confirm their to confirm their sterile processes by sterile processes by only testing for sterility only testing for sterility after freezing the after freezing the sample, which could sample, which could hide

hide hide contamination. And also contamination. And also those who indicated a those who indicated a shelf life of 2 shelf life of 2 years without any years without any stability data.

stability data. They also found They also found gaps in gaps in screening donors for screening donors for infectious infectious infectious diseases. The bottom line is that just diseases. The bottom line is that just because a because a company produces company produces exosomes doesn't exosomes doesn't mean they're of mean they're of high quality. If you high quality. If you live with pain, live with pain, inflammation, and are looking for inflammation, and are looking for another tool on your another tool on your path to longevity, path to longevity, we hope this we hope this video helps you video helps you better understand better understand exosomes before exosomes before discussing them with discussing them with your doctor. If your doctor. If you found this analysis you found this analysis useful, click the useful, click the "like" button "like" button and subscribe to and subscribe to receive new receive new science- science- science- based knowledge based knowledge about hormones, peptides, about hormones, peptides, longevity medicine, longevity medicine, and share and share this video with someone in this video with someone in your environment who your environment who might need it.

might need it. Thank you for watching. I'm Thank you for watching. I'm Dr. Greg Jones, and Dr. Greg Jones, and I'll see you in the I'll see you in the