

## EQUINE ORTHOBIOLOGY AND TRANSLATIONAL MEDICINE A presentation of the science behind Lipogems Equine with supporting equine case studies

By Martin ffrench Blake, Tim Watson & Stefano Olgiati



A presentation of the science behind Lipogems with supporting equine case studies ~ Index

- Pg 3. Revolutionising Regenerative Equine Veterinary Medicine
- **Pg 4.** Providing Cutting-edge Treatment for the Worldwide Equine Community
- Pg 5. The Story Behind the Science
- Pg 6. What is Tissue Engineering?
- Pg 7. Why is Lipogems Different?
- Pg 8. Lipogems can find Pericytes in Adipose tissue
- Pg 9. Autologous Self-cell Repair in Action
- Pg 10. Dr Arnold Caplan TOBI Presentation
- Pg 11. What is Orthobiology?

Pg 12. Performance Horses Injury Treatment Pg 13. Lipogems Treatment Steps 1, 2 & 3 Pg 14. Demonstration Videos of Lipogems Pg 15. What do the Veterinary Surgeons say? Pg 17. Equine Application Case Studies 1-19 Pg 40. Lipocast Biotech UK Ltd ~ Insurance Reimbursable Pg 41. Press and Media ~ Mutual Advertising Pg 42. Standard Operating Procedures Pg 43. Links for Further Reading and Research Pg 44. Summary of Lipogems Equine Benefits Pg 45. Contacts for the Lipogems Equine Team





## Revolutionising Regenerative Equine Veterinary Medicine

Lipogems<sup>®</sup> has been used in more than **10,000 human patients worldwide. A** growing bibliography documenting the scientific basis for its regenerative capacity in general, orthopaedic, aesthetic and oral-maxillofacial surgery.

Intra-articular and lesional injection has been used to treat knee, ankle, hip and shoulder osteoarthritis, degenerative spinal disc disease, and injuries to tendons, ligaments and menisci.

This patented technology produces **microfragmented adipose tissue** with an intact stromal vascular niche and **MSCs** with a high regenerative capacity. Lipogems<sup>®</sup> is an easy to use, rapid and cost effective technique for harvesting and processing adipose tissue derived **Mesenchymal Stem Cells (MSCs).** The technology has been launched on the worldwide veterinary market.

In the equine veterinary market conditions treated to date include lesions of the superficial and deep flexor tendons, suspensory ligament desmitis (proximal, body and branch lesions), check ligament injuries, and osteoarthritis affecting distal interphalangeal, fetlock and stifle joints, sacroiliac injuries and kissing spines. Clinical improvements are evident as early three weeks.



# Providing Cutting-edge Treatment for the Worldwide Equine Community

Lipogems Equine selectively train veterinarians around the world in the use of Lipogems. Kits are only provided to those practices that have completed training with Lipocast Biotech UK and signed the Terms and Conditions of Accreditation.



### Accreditation

All our accredited vets are listed on our website following the provision of kits and attendance at one of our training days. Selected dates are published on our website or can be arranged at your practice by prior appointment.

### Lipogems Equine Veterinary Kits

Kits can be ordered at anytime and delivered to your practice, or for the first order they can be collected at the training day. All kits are invoiced with a 90 day payment date.

### Pricing

For more information about pricing please contact the Lipogems Equine Team.

# LIPOGEMS The Story Behind the Science

Lipogems was invented by Dr. Carlo Tremolada, a renowned Italian maxillofacial plastic surgeon, who was searching for a way to create a smoother, more viscous fat graft for filling defects and creating natural volumetric enhancement of the face.

Unexpectedly, his patients experienced a significant decrease in bruising and inflammation normally associated with these procedures, and demonstrated substantial regenerative effects on the underlying tissues.

Subsequently, scientific colleagues at the University of Miami, the Pasteur Institute in Paris, and UCLA have identified and validated **unique regenerative characteristics within the Lipogems. The** Lipogems system received FDA 510(k) clearance in the U.S in December of 2014.

The efficient closed-loop device, initially used only in plastic and reconstructive surgery, showed remarkable benefits for orthopaedic indications, opening enormous market potential in the US.

# LIPOGEMS What is Tissue Engineering?

## A New Therapeutic Technology of Autologous Self-cell Repair

Bone and cartilage formation in the embryo and repair and turnover in the adult involve the progeny of a small number of cells called Mesenchymal Stem Cells (MSCs). These cells divide, and their progeny become committed to a specific and distinctive phenotypic pathway, a lineage with discrete steps and, finally, end-stage cells involved with fabrication of a unique tissue type, e.g., cartilage or bone. Local cuing (extrinsic factors) and the genomic potential (intrinsic factors) interact at each lineage step to control the rate and characteristic phenotype of the cells in the emerging tissue. The study of these Mesenchymal Stem Cells, whether isolated from embryos or adults, provides the basis for the emergence of a new therapeutic technology of self-cell repair. The isolation, mitotic expansion, and site-directed delivery of autologous stem cells can govern the rapid and specific repair of skeletal tissues. PMID: 1870029 [PubMed - indexed for MEDLINE]. Caplan A. Mesenchymal Stem Cells. J Orthop Res. 1991 Sep;9(5):641-50





Stromal fraction transplantation is enriched by active pericytes. Exosome activation means there is cell communication

Exosomes are vesicles that are secreted by cells to carry information to other cells:



- Encapsulated messages released by cells
- Contain proteins and genetic material
- Affects cell behavior

Click below to watch the video



Lipogems can find Pericytes in Adipose tissue. Pericytes exist in adipose tissue niche wrapped around capillaries within adipocyte clusters. Pericytes react to signals from injury or damage.



Therapies such as PRP or Enzymatic MSC Therapy have no presence of Exosomes, therfore no cell communication

## PURE PRP

Video 1: **Platelet Rich** Plasma (PRP), click below to watch the video



Stem Cell Therapy is Happening Now

Cell - Enhanced Anti Aging

Video 2 : Enzymatic MSC Therapy, click below to watch the video



## Autologous Self-cell Repair in Action



## Stromal Cell-Derived Factor 1 (SDF1)

Here is a commentated video of Lipogems® Lipoaspirate injection, Malan, 2016 (CLICK IMAGE BELOW TO SEE VIDEO)

"Here we watch the cells migrate out of the vessel to this wound. So when you injecting these cells, and lets not call it a stem cell treatment, a stem cell treatment means only stem cells, we are not interested in that we are interested in autologous marrow treatment. This happens naturally in the body. In the body it uses the vasculature system as a highway."





Search

Dr Arnold Caplan presented at The Orthobiologic Institute TOBI conference in June 2016 about Lipogems and MSC's.

Click on the image to link directly to the You Tube page to watch this video. Or visit

https://www.youtube.com/ watch?v=Cx0GEUzBuzc



Dr. Caplan speaking at TOBI June 2016

# **LIPCENS** What is Orthobiology?

Orthobiology	<ul> <li>Is a field of regenerative medicine that aims at the biological regeneration of tissues rather than their replacement.</li> </ul>
Orthobiology	<ul> <li>Aims at stimulating the body's natural resources to regenerate damages caused by trauma or diseases.</li> </ul>
Orthobiology	• Uses the synergy of the work of biologists, orthopaedists and veterinarians through a process of translational medicine from the laboratory bench to the veterinary surgery ward.
Orthobiology	• Uses biomaterials, growth factors and the patient's own cells which together provide a good support for the regeneration of the musculoskeletal structures.

# **EIPCENS** E O U I N E Performance Horses Injury Treatment

With over 50 cases done in the UK to date, a variety of injuries have been treated. It is estimated that 20% of all horses training for sporting or performance events are unable to compete due to injury

The conditions treated are:

- Flexor tendon injury superficial and deep
- Suspensory ligament proximal body and branch leisons
- Check ligament desmitis
- Degenerative joint disease fetlock, stifle and interphalangeal joints

Additional applications: Non-healing wounds 🏶 Lumbosacral pain





Step 1 - Harvest the adipose tissueStep 2 - Process the tissue with theLipogems canister

**Step 3** - Processed tissue is collected ready for injection into the injury site

Click below for video footage of the harvesting process





Hard and digital copies of our Standard Operating Procedure is given to all accredited veterinarians, complete with demonstration videos.





Video 1: This animation demonstrates how the Lipogems device is used to process and collect the adipose tissue ready for treatment.



Video 2: Lead vet Dr Tim Watson training vets in the use of the Lipogems device.

# 

"While the science behind Lipogems is exciting, the results are even more remarkable than this promise suggests. Having used the procedure in a range of sites and pathologies, we are seeing healing at a rate and of a quality that you simply don't see with bone marrow-derived stem cell or platelet-rich plasma therapies. Also, as the technique is fine tuned we are now collecting 20-30ml of Lipogems in a single harvest."

### Dr Tim Watson BVM&S PhD MRCVS, Waterlane Equine Vets

"Lipogems is a new regenerative therapy for use in horses, utilising fat tissue derived Mesenchymal Stem Cells taken from the tail head of the patient and prepared using a stable-side kit, enabling the treatment to be carried out on site and without delay... It is proving to be a revolutionary new mode of treatment for a group of injuries that have previously been difficult to treat and often with an unfavourable outcome... This has great potential in many equestrian disciplines such as racing, eventing and polo."

Dr Clive Hamblin BVET MED MRCVS, National Trainers Federation (NTF) Veterinary Advisor









Murray Shotter BVSc MRCVS On 6 Jul 2016, at 09:08, Murray Shotter <<u>murray.shotter@shotterandbyers.co.uk</u>> wrote: Hi martin

Here are a few of my thoughts on Lipogems.

Lipogems allows the harvesting and transplanting of lipoaspirate from fat tissue in the horse within 20-30 minutes of harvesting.

This is a new technique. On the ponies I have done so far the results look very promising. The idea that you can transplant in the field rather than send it to a hospital is great news providing the sterility is kept up at all times.

This technique of injecting fat cells into a tendon or suspensory ligament is interesting and no rejection has been in the cases I have done so far, there has been little to no swelling five days after transplanting and even two weeks after.

The technique itself is pretty easy which is good news

Regards

Murray

Sent from my BlackBerry 10 smartphone.



- 1. Sassica ~ 12-year-old Polo Pony
- 2. Rooney ~ 5-year-old National Hunt Horse
- 3. Aussie ~ 11-years-old, Irish Sports Horse, Eventing 2\*
- 4. Rasta ~ 9-year-old Medium Goal Polo Pony
- 5. Harley ~ 12-year-old Medium Goal Polo Pony
- 6. Colby ~ 14-year-old Sports Horse, Eventing 4\*
- 7. Orion Harper ~ 4-year-old National Hunt Horse
- 8. Ascot ~ 8-year-old Polo Pony
- 9. Lennox ~ 8-year-old High Goal Polo Pony
- 10. Dragon Lane ~ National Hunt Horse
- 11. Gloria ~ 11-year-old Medium Goal Polo Pony
- 12. Potranca ~ 11-year-old Polo Pony
- 13. Ellie ~ 13-year-old Exmoor Pony
- 14. Poppy Horse and Hound Public Forum\*
- 15. Romeo ~ 5-year-old Warmblood, Eventing
- 16. Maluka ~ 6-year-old National Hunt Racehorse

17. CASE REPORT LV-HORSE-TRAUMA-15-3\*
18. CASE REPORT LV-HORSE-TRAUMA-15-2\*
19. CASE REPORT LV-HORSE-TRAUMA-15-1\*

\*Note - these procedure were not performed by Lipocast Biotech UK/ Lipogems Equine



# LIPOGEMS 1. Sassica ~ 12-year-old Polo Pony

SASSY

Injury Superficial digital flexor tendon **Treatment with Lipogems** 14 June 2016

Prognosis after Lipogems treatment Scans at 5 weeks show residence of the lipoaspirate in the lesion and the origins of tendon regeneration. This was a big injury and normally a career ending one. This pony had 1 months box rest, followed by some gentle walking and rehabilitation. Now turned out at grass ready for the 2017 polo season.

2016Jul20

M 0.8 TIS 0.1



## **LIPOGENS** E Q U I N E **2. Rooney** ~ 5-year-old National Hunt Horse

Injury Superficial digital flexor tendon injury with core lesion zone 1A and 1B Treatment with Lipogems 30 April 2016 **Prognosis after Lipogems treatment** The lipoaspirate is clearly visible in the lesion 10 days after treatment. One month after treatment the horse was back in ridden walking exercise.



# LIPOGEMS 3. Aussie ~ 11-years-old, Irish Sports Horse, Eventing 2\*

Injury Proximal suspensory desmitis hindlimb Treatment with Lipogems 2 June 2016 **Prognosis after Lipogems treatment** Scan shows complete resolution of hypoechoic lesion in proximal suspensory ligament left hind. Horse has been on walking exercise and will return to ridden work at 5 weeks.

🤈 COLEMAN, AU	USSIE	2016May26 16:39	🤈 COLEMAN, AUSSIE		2016Jun27	12:55
Res MB L	.H	Sup L25	Res MB		•	- Sup L25
		. 97% 243 0				. 95% 8 0
		MI 0.8 ∢II▶				. MI 0.8 ∢II▶
						-
Injury		3.7	Post treat	ment	3.7	

# E Q U I N E 3. Aussie ~ 11-years-old, Irish Sports Horse, Eventing 2\*





## 4. Rasta ~ 9-year-old Medium Goal Polo Pony

**Injury** Deep laceration wound in the hock region **Treatment with Lipogems** 30 April 2016



Pictures: The original injury pre treatment

**Prognosis after Lipogems treatment** Back playing polo by 28 June 2016



Pictures: May and then June post treatment with Lipogems



# 4. Rasta - 9-year-old Medium Goal Polo Pony



This video shows Rasta trotting up sound on 10 May 2016 following treatment by Dr Tim Watson on 30 April 2016.



## **LIPOGENS** E Q U I N E **5. Harley ~ 12-year-old Medium Goal Polo Pony**

### Injury

Early osteoarthritis in both front fetlocks and suspensory ligament branch desmitis

lmg: 0/11 lmg: 0/11 Veterinary Veterinary Treatment with Anatomy: Xray Anatomy: Xray Lipogems Tarsus Vet Fetlock Vet 30 April 2016 View: **Rec**:VetFirst View: **Rec**:VetFirst DLPMO Name DLPMO Name **Prognosis after Lipogems** treatment Sound with less inflammation in the fetlock joint Left fore 11/05/16 (11 days Left fore 29/04/16 post treatment) DX DX

## **LIPOGENS** E Q U I N E **5. Harley ~ 12-year-old Medium Goal Polo Pony**



The left hand image shows Harleys fetlocks prior to treatment and the image on the right shows the front left fore two weeks after the Lipogems treatment. On examination there was less swelling and heat in both front fetlocks. In the video below Harley trots up sound one month post treatment





## **EIPOGENS** E Q U I N E **6. Colby ~ 14-year-old Sports Horse, Eventing 4\***

Injury Suspensory branch desmitis forelimb Treatment with Lipogems 10 May 2016

**Prognosis after Lipogems Treatment** 12 weeks after treatment Colby was back in training and scheduled to commence full work 20 weeks after treatment





# **EIPOGENS 7. Orion Harper ~ 4-year-old National Hunt Horse**

Injury Deep digital flexor tendon lesion with infiltration of the tendon sheath **Treatment with Lipogems** 22 May 2016

**Prognosis after Lipogems treatment** Follow up scan a month after treatment showed no significant improvement. This was a bad injury and euthanasia was recommended by a referral hospital - this was because the tendon damage itself was not infiltrated with lipoaspirate. Dr Tim Watson has subsequently injected lipoasipirate into lesions of this type within the tendon sheath and managed to achieve successful residence of the transplant.





## 8. Ascot ~ 8-year-old Polo Pony

Injury Suspensory body desmitis forelimb

**Treatment with Lipogems** 23 May 2016

**Prognosis after treatment** After three weeks the improvement in fibre pattern is remarkable and something we could only hope for at 12 weeks after PRP therapy! Rehabilitation comprised of 12 weeks of confinement with progressive walking exercise. The pony has now been turned out for the winter ready for the 2017 polo season.



23 May 2016

7 September 2016





# **ELIPOGENS** B O U I N E **9. Lennox ~ 8-year-old High Goal Polo Pony**

Injury Suspensory branch desmitis forelimb

Treatment with Lipogems 23 May 2016

**Prognosis after Lipogems treatment** After three weeks the improvement in fibre pattern is remarkable and something we could only hope for at 12 weeks after PRP therapy. Rehabilitation comprised of 12 weeks of confinement with progressive walking exercise. The pony was turned out for the winter ready for the 2017 polo season the 2017 polo season.



23 May 2016

7 September 2016



Injury Proximal suspensory desmitis forelimb

### **Treatment with Lipogems** 25 May 2016

 
 DUKEOFLOVE PICO LANE
 B MIDDLETON MRCVS Musculoskeletal
 #255 HL5-SED
 S.0 cm
 MI0.43
 24-05-2016 Gen. Tis
 00
 01:53:06 PM

 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I
 I</

**Prognosis after Lipogems treatment** This horse was sore after treatment but settled after a few days. The scan at 6 weeks showed good healing. The horse is now sound and started rehabilitation work.





## **Injury** Proximal suspensory desmitis forelimb **Treatment with Lipogems** 24 June 2016



**Prognosis after Lipogems treatment** Significant improvement in the ultrasound scans at both 10 days and 10 weeks post treatment. The pony was turned out for the winter following box rest ready to come back to work for the 2017 polo season.





# LIPOGEMS 12. Potranca ~ 11-year-old Polo Pony

### Injury

Superficial flexor tendon, zones 1A to 2B and suspensory branch desmitis **Treatment with Lipogems** 3 June 2016

### **Prognosis after Lipogems treatment**

Significant improvement in ultrasound appearance at 4 weeks and normal appearance at 13 weeks. The pony was turned out for the winter ready for the 2017 polo season.



# LIPOGEMS 13. Ellie ~ 13-year-old Exmoor Pony

### Injury

Soft tissue stifle injury

Left hindlimb lameness (4/10), localised to the stifle by diagnostic analgesia. No abnormalities shown on radiography or ultrasanogoraphy. Presumed soft tissue injury to cruciate ligament and or meniscus. Financial pressures precluded arthroscopy. There was a poor response to rest and intra-articular injections of corticosteroids.

### Treatment with Lipogems

Lipogems procedure 12/07/16 with 5 ml lipoaspirate injected into femorotibial (lateral and medial) and femoropateallar joints. Followed by 5 weeks of stable rest.

Prognosis after Lipogems treatment

At 5 weeks, no lameness when trotted in straight line and on lunge on right rein. Slight residual lameness on left rein. Plan to walk out for 4 weeks and review

Fully sound at 9 weeks, no evidence of lameness, and resumption of normal riding activities.







# 14. Poppy - Horse and Hound Public Forum"Acute tear in deep digital flexor tendon"

4<sup>th</sup> August 2016 - "My vet with guidance from Roger at RVC decided they would treat by taking a fat sample from her tailhead, before processing with a lipogems kit and injecting back into her DFT rather than the more commonly used approach of cultivating stem cells from bone marrow. Apparently this has shown in studies to have a higher success rate, but is a fairly new approach from what I can gather."

**4<sup>th</sup> September 2016** – "It's hard to believe we've been on box rest for nearly two months now but in all honesty it's flown by so far. We had the vet out last week for a rescan and he confirmed the lesion is healing well and he's extremely pleased with her progress...music to my ears considering where we were at two months ago. She's up to almost an hour on the horse walker now and taking it all in her stride.

What's more, if all continues as it has been we'll be able to begin ridden walk work at the end of the month! I'm beyond excited about this but equally terrified of a) her breaking again and b) getting on a 5yo WB that's been stabled for almost 3 months at that point! Thankfully I have our wonderful yard staff who will play crash test dummies the first few times but then there'll be no stopping me hopping on board. With any luck we'll continue with the hacking rehab until January when we can reintroduce light school work"

### HorseandHound.co.uk public forum, August 2016

Note - this procedure was not performed by Lipocast Biotech UK/ Lipogems Equine

http://www.horseandhound.co.uk/forums/showthread.php?734018-Poppy-update-horse-lipo-a-smallimprovement-amp-more-waiting

http://www.horseandhound.co.uk/forums/showthread.php?735810-Another-Poppy-update-3-weeks-and-counting!

# LIPOGEMS 15. Romeo ~ 5-year-old Warmblood, Eventing

Injury May 2015 - Proximal suspensory ligament injury left fore - treated with local infiltration corticosteroids, returned to soundness and competed first part 2016 season. July 2016 - Lameness recurred with hypoechoic lesion ligament present in proximal suspensory ligament on ultrasonography.

**Treatment with Lipogems** 18 July 2016 with 5ml Lipoaspirate

**Prognosis after Lipogems treatment** Marked improvement in ultrasound appearance at 7 weeks. Horse continuing walking rehabilitation.





# LIPOGENS 16. Maluka ~ 6-year-old National Hunt Racehorse

### Injury

Superficial digital flexor tendon injury zones 1B to 3A **Treatment with Lipogems** 11th August 2016 then scanned 30 September 2016 Prognosis after Lipogems treatment Horse returned to work





LIPOGENS E Q U I N E 17. CASE REPORT LV-HORSE-TRAUMA-15-3 Racing Horse (COLDPLAY) Synovitis Racing Horse (COLDPLAY) Synovitis



Note - this procedure was not performed by Lipocast Biotech UK/ Lipogems Equine

### **LIPOGENS** E Q U I N E 18. CASE REPORT LV-HORSE-TRAUMA-15-2 Show Jumping - Superficial digital flexor tendon injury



Fig.5 Images on the top are concerning the MRI examination performed at the time of injection, while those on the bottom have been acquired 5 months after injection. In T1 weighted images are indicated the ROIs concerning the tendon and the lesion. In STIR images is displayed only the lesion ROI. Hannover, mare, 10-year-old high level show jumper

Subacute lameness 3/5 degree. Ultrasound revealed a SDFT lesion in the proximal aspect of the metacarpal region. On MRI images the lesion showed high signal intensity in both T1 and T2 weighted images and STIR sequences and was 4 cm in length and 1 cm in diameter (Fig.3). The lesion was injected with 6cc of lipoaspirate, under ultrasonographic guide. The treatment was followed by a period of one month of box rest.

Note - this procedure was not performed by Lipocast Biotech UK/ Lipogems Equine

## LIPOGENS E Q U I N E Reining Horse - Superficial digital flexor tendon injury



Figure 1: Ultrasonographic examination performed at the time of injection.

Appaloosa X, 13-year-old gelding

Chronic 2/5 lameness right forelimb. Palpation of SDFT revealed heat and pain. An ultrasonographic examination revealed a severe SDFT tenopathy at proximal third of metacarpal region. The lesion was 10 cm in length



Fig.2 Ultrasonographic examination performed two months after lipoaspirate injection.



Note - this procedure was not performed by Lipocast Biotech UK/ Lipogems Equine



## Lipocast Biotech UK Ltd ~ Insurance Reimbursable

So far we have processed several claims on behalf of clients made to UK based equestrian insurance companies.

In each case they have been invoiced for "autologous adipose tissue transplant".

These claims are being honoured with Veterinary recommendation as long as the fee is within the insured amount. In all cases so far the total billed is well within the insurance limit per incident.

We have used Shearwater and NFU Mutual. We are in discussions with the UK top equine insurance underwriters and KBIS have also expressed interest in our treatment.





## Press and Media ~ Mutual Advertising

**VP JANUARY 2017** 

that the

romal

by the Dr Tim esions. ue injuries

hritis, deep

"Regenerative" treatment for horses

agmenting adipose tissue obtained

non-enzymatic, mechanical

LIPOCAST Biotech UK Ltd, based in Cirencester, has introduced Lipogems Equine, which it describes as an innovative application of regenerative medicine.

It works by mi

from lipoaspirz

### www.lipogemsequine.com

Press Portal: https://docs.com/LipogemsEquine/3678/lipogems-equine-presspacks

Vet research papers/ SOP download portal:



# E Q U I N E Standard Operating Procedures

A standard Operating Procedure has been documented and produced by Lipocast Biotech UK Ltd.

Hard copies are given to all accredited veterinary surgeons and a digital copy is available to download with an online link which includes demonstration videos and animations.

Links for further reading and downloads are in the following pages of this presentation.

Part 14 - Attach 50ml syringe to connector

•Turn the device through 180 degrees so that the blue end is now uppermost

•Take the 50 ml syringe containing lipoaspirate, eject any aqueous tissue.



Part 7 - Infiltration of the subcutaneous tissue

Using the 20G cannula infiltrate the subcutaneous tissue in the region of deepest adipose tissue with 150 ml local anaesthetic/saline solution. This should far out from the tail head towards the ischial tuberosity

 Repeat on the other si of the tail head

🗱 Part 11 - Leave the harvested material to stand vertically

**ENGINEERING** 









## Links for Further Reading and Research



To download a full press pack click this ink: tps://docs.com/LipogemsEquine/3678/lipogems-equine-press-packs



Features and articles published in equine and veterinary press: <u>https://docs.com/LipogemsEquine#document</u>



Adipose Tissue and Mesenchymal Stem Cells: State of the Art and Lipogems<sup>®</sup> Technology Development: <u>https://doc.co/5EQPA2</u>



Angiogenic and anti-inflammatory properties of micro-fragmented fat tissue and its derived mesenchymal stromal cells: <u>https://doc.co/cG1SPT</u>



Lipocast Biotech UK - Lipogems SOP 006 - with videos: https://doc.co/bKq4zS without videos: https://doc.co/fKHDXe





Lipogems is a simple, easy to perform, patient-side technique



Rapid and cost-effective for immediate treatment of a range of orthopaedic conditions



Radiographic/ultrasonographic evidence of healing as early as 10 days and compete by 6 weeks



Enables much earlier return to training/competition than other therapies (e.g. PRP, BMD MSC, hyaluronic acid)



Potential for systemic benefits in terms of muscular and metabolic health, growth and development, recuperation/recovery from endurance/intense exercise



Cryopreservation will enable banking of lipoaspirate for sequential/future treatment



## **Contacts for the Lipogems Equine Team**

Martin ffrench Blake (CEO) T: 07971 401 144 E: martin\_ffrench\_blake@lipogemsequine.com

Dr Tim Watson (Lead Vet) T: 07557 857 930 E: tim@waterlaneequinevets.co.uk

Lucy Wilson (General Manager) T: 07919 252 529 E: lucy\_wilson@lipogemsequine.com

W: lipogemsequine.com

Follow us: @lipogemsequine

