Expanding your Service Offering Post Covid-19 by Adding PRP: The Details, Benefits and Upsides

Vincent Nacouzi, MD

Disclosure: Dr.Vincent Nacouzi, MD has no relevant relationships with commercial interest to disclose.

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- 20 Years of experience in Emergency & Critical Care
- Research experience in Molecular Biology at UCLA
- First physician in Raleigh, NC to perform PRP Vampire Face Lift
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Dr. Vincent Nacouzi

Objectives:

1. Identify the benefits of PRP for the treatment on bones, ligaments, and tendons.
2. Describe how PRP can rejuvenate or repair, aging skin, scars, burns, ED, asthma, COPD and sexual dysfunction.
3. Recall how PRP can be a safe cheaper alternative to medical and surgical procedures.
4. Define how degranulation is one of the key components of PRP.
5. Associate how high speed centrifugation compacts platelets destroying their shape and reduces activity and triggers unknown early mechanisms.

Welcome to PRP

PLATELET RICH PLASMA

Safe Inexpensive promising

PRP – chosen for its **BENEFITS**

In Sports:

Faster healing reduces seriousness of an injury for athletes

An estimated 86,000 athletes are receiving PRP treatment annually.

Assists **recovery regardless** of treatment site

PRP is used for bone, ligaments, and tendon treatment alike.

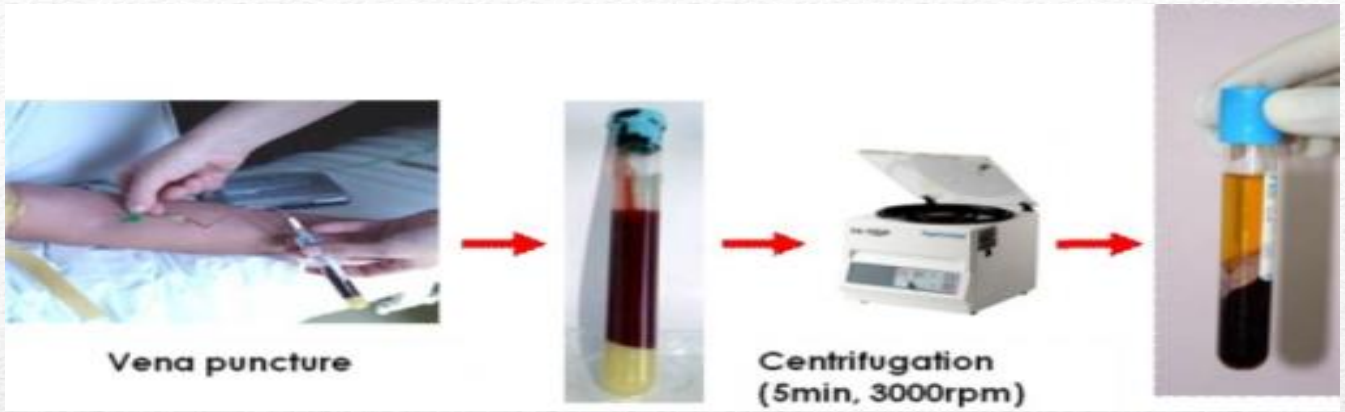
Has been used for over 30 years in plastic surgery, ENT, OMF, ophthalmology, urology, cardiology, etc. and now in Esthetics, Hair Loss, Scaring…

So **imagine**:

- You take a **small tube of blood** from your patient and with simple equipment you extract and **concentrate** millions of **intact platelets** in serum (PRP) and completely **eliminate** all the RBC's and WBC's (so that they do not interfere.)

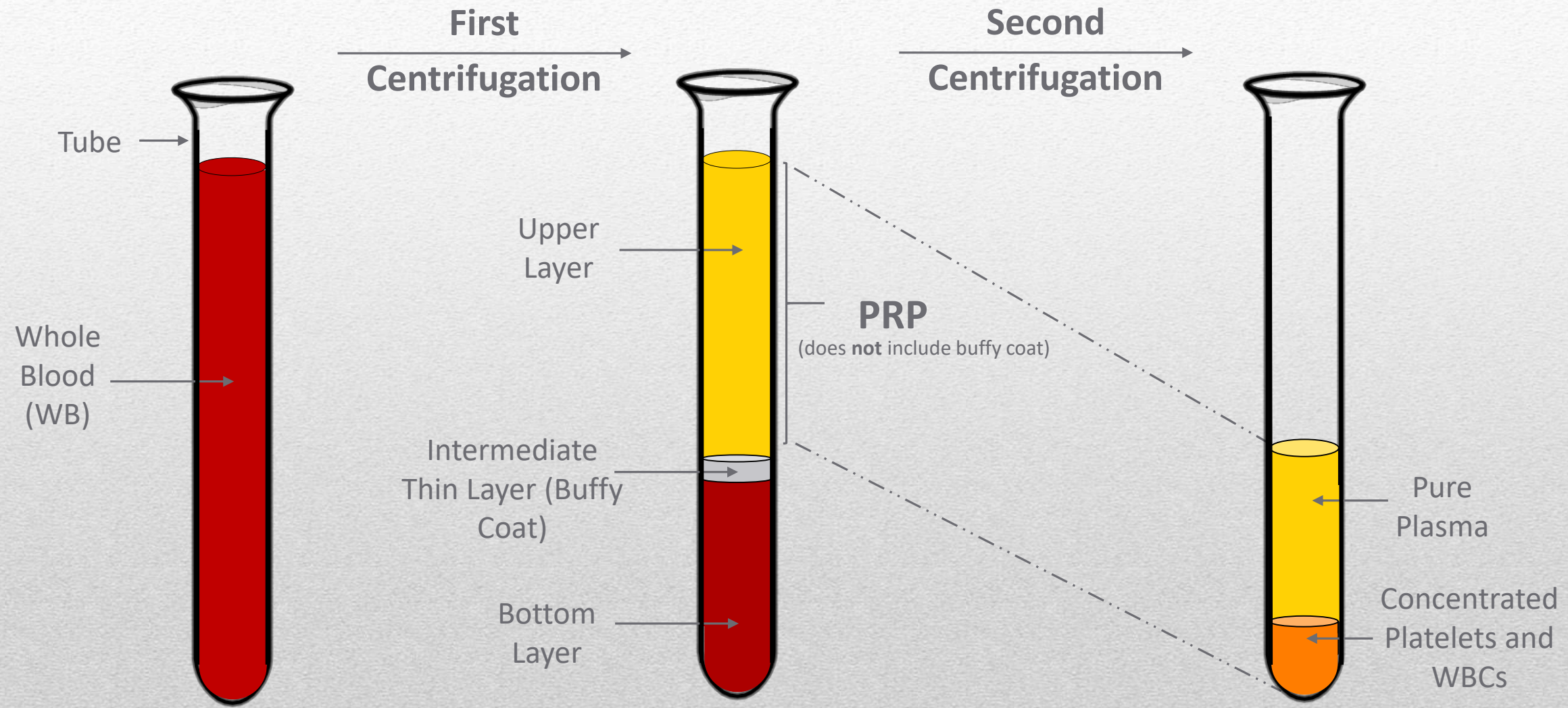
- The PRP is now **injected** in the areas in need of rejuvenation or repair: An aging face, skin, scars, burns, joint arthropathies, tendinopathies, tissue regeneration as in ED, Asthma, COPD, Vaginal area, Penis and so forth. The **choice is yours**, equally **applicable and simple**.

- In **less than an hour** tissue can begin to **rejuvenate, heal and correct** dozens of pathologies and esthetic challenges. All this with a **100% safe** product and at a **fraction of the cost** of ongoing medical and surgical procedures with **little to no down time**. Your patients can develop **new hope** for difficult conditions at an affordable price.

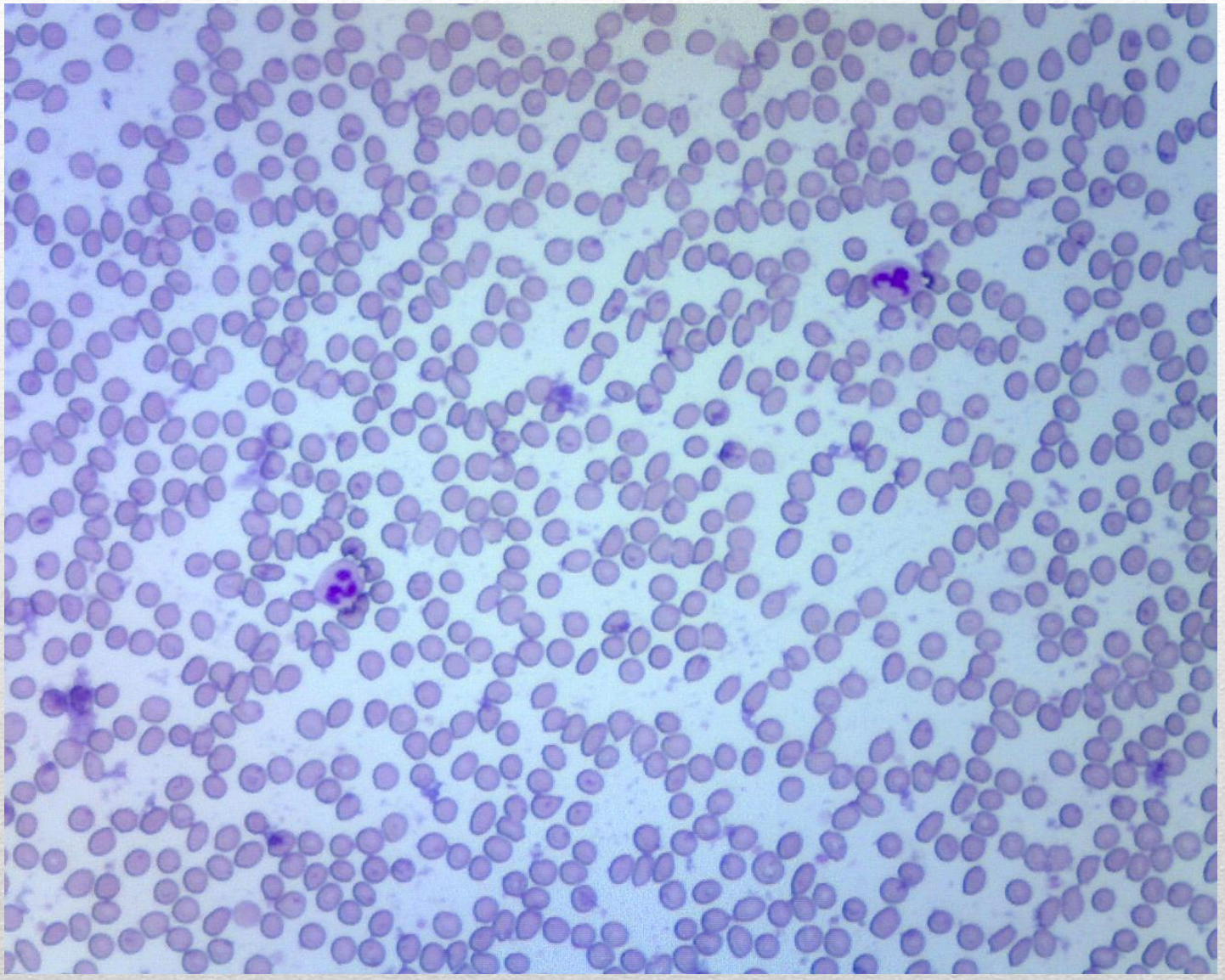


Typical Single Spin PRP tube

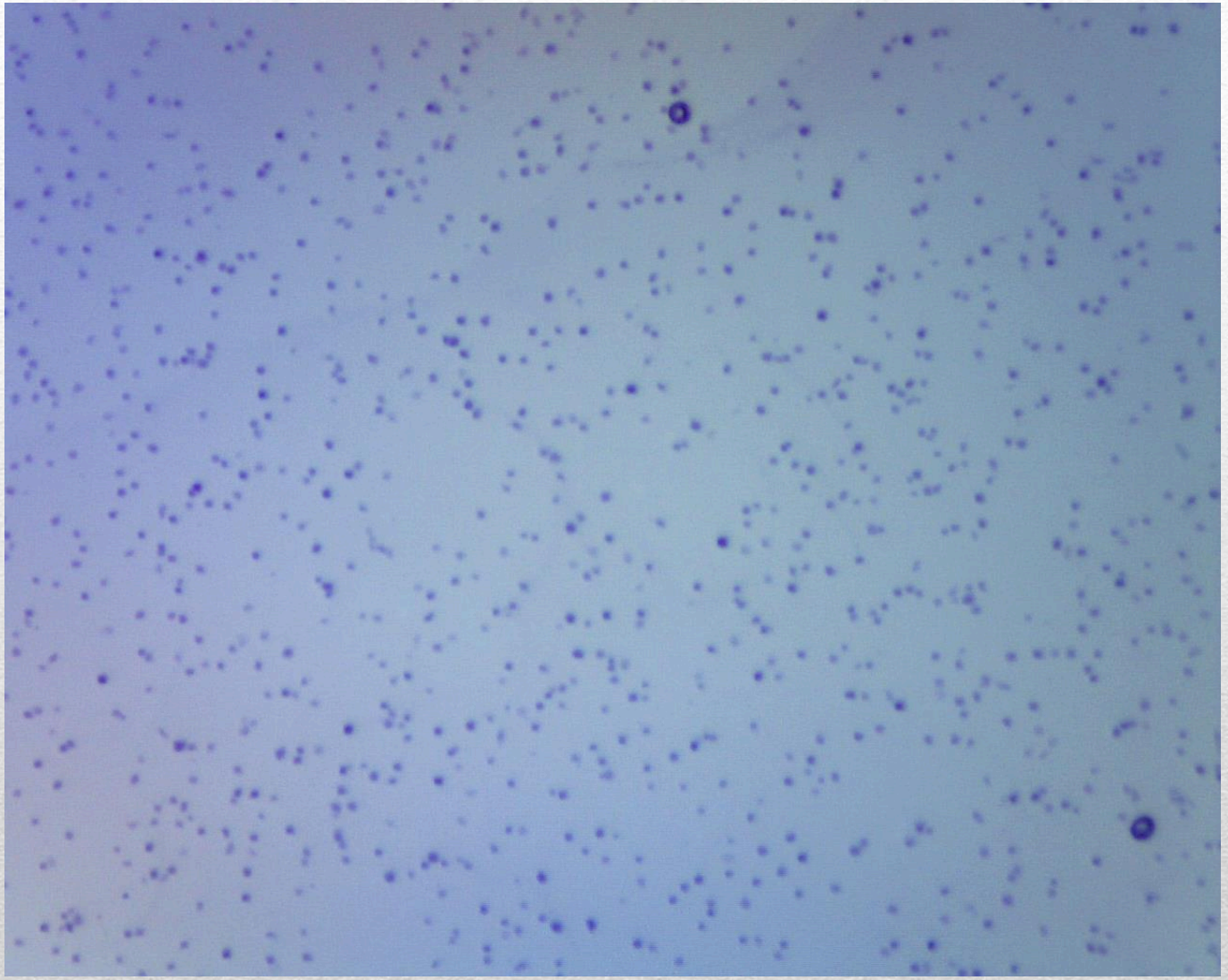
Double Spin PRP



A Normal Blood Smear.



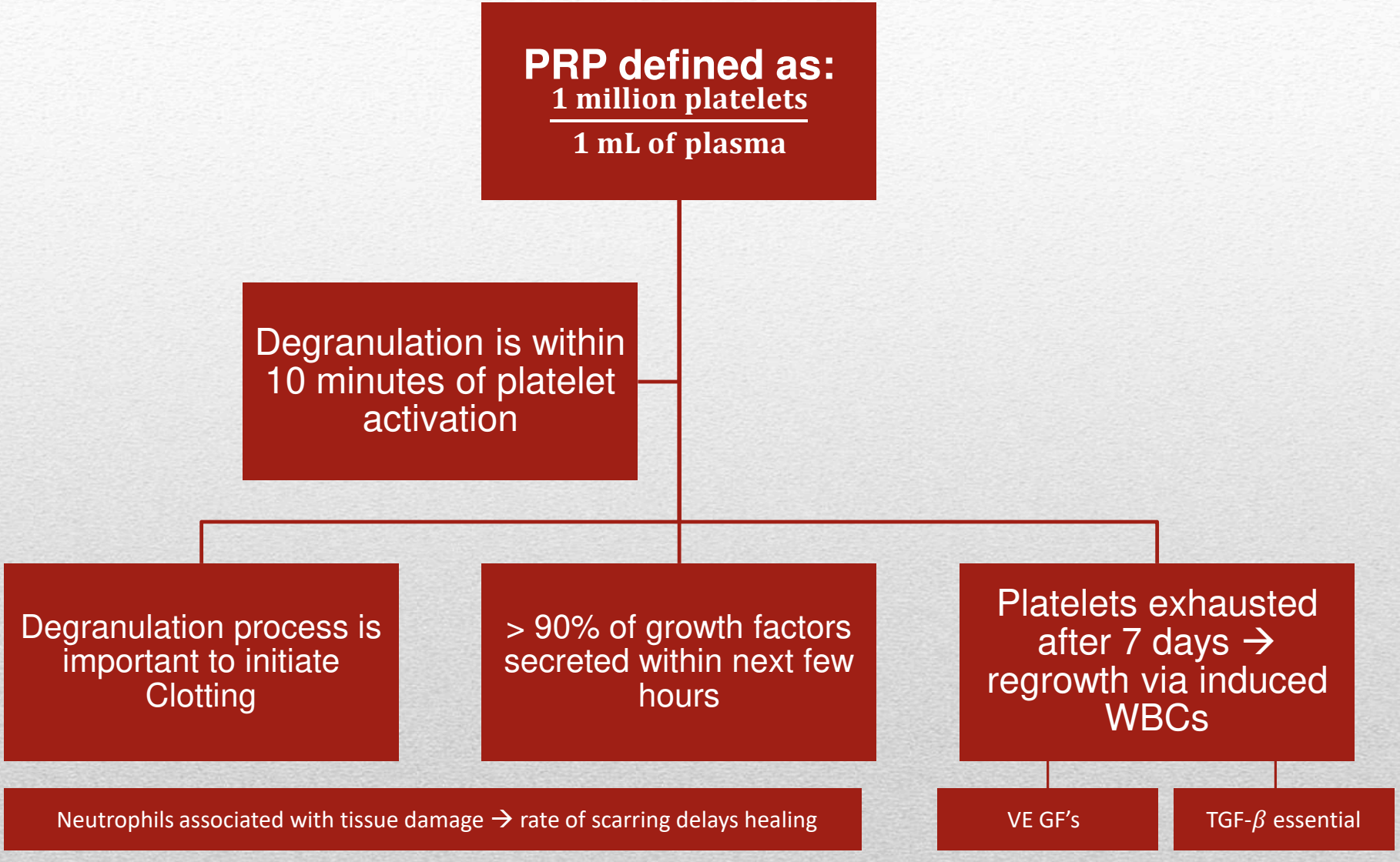
A good single spin PRP



The PRP Procedure

Blood drawn → **Healing factors extracted** → **Regenerative cell development** → **Re-introduction via injection into treatment site**

Rejuvenation – cell growth + skin thickening + angiogenesis – **Revitalization**


PRP defined as:
1 million platelets
1 mL of plasma
Degranulation is within 10 minutes of platelet activation
Degranulation process is important to initiate Clotting
> 90% of growth factors secreted within next few hours
Platelets exhausted after 7 days → regrowth via induced WBCs
Neutrophils associated with tissue damage → rate of scarring delays healing
VE GF's
TGF-β essential

How it Works

- During wound healing, **platelets are among first to respond** to the wound site.
  - Besides pro-coagulation, they **carry** many important **growth factors.**

- There are two main sorts of granules on the platelets:
  - **Alpha granules**
    - Contain fibrinogen, fibronectin, factor V, Transforming growth factors-B(TGF-B), fibroblast growth factors, Insulin like growth factors (IGF-1 and IGF-II), vascular endothelial growth factor (VEGF).
  - **Dense bodies**
    - Contain ADP, ATP, ionized calcium, histamine and epinephrine.

- These molecules when released, **modulate** angiogenesis, **remodel** the extracellular matrix and **affect** the recruitment, proliferation, and differentiation of stem cells.

Growth factors	Main functions
PDGF [27]	– Increases hair growth – Vascularization – Angiogenesis stimulator
TGF-β [29]	– Inhibits hair growth in vitro – Hair-cell proliferation and regeneration
VEGF [28]	– Expressed in DP cells in the anagen phase – Probably regulates perifollicular angiogenesis – Increases perifollicular vessel size during the anagen growth phase
EGF [29, 43]	– Angiogenesis stimulator – Hair-cell proliferation and regeneration
HGF [36]	– Angiogenesis stimulator
FGF [29, 43–45]	– Increases hair growth by inducing the anagen phase of HF – Promotes DP cell proliferation – Increases the HF size in mice – Angiogenesis stimulators
IGF-1 [6, 27, 46]	– Increases hair growth – Maintains HF growth in vitro – Angiogenesis stimulator

PDGF, platelet-derived growth factor; TGF, transforming growth factor; VEGF, vascular endothelial growth factor; DP, dermal papilla; EGF, epidermal growth factor; HGF, hepatocyte growth factor; FGF, fibroblast growth factor; IGF-1, insulin-like growth factor 1; HF, human follicle(s).

Let’s step back for a second …

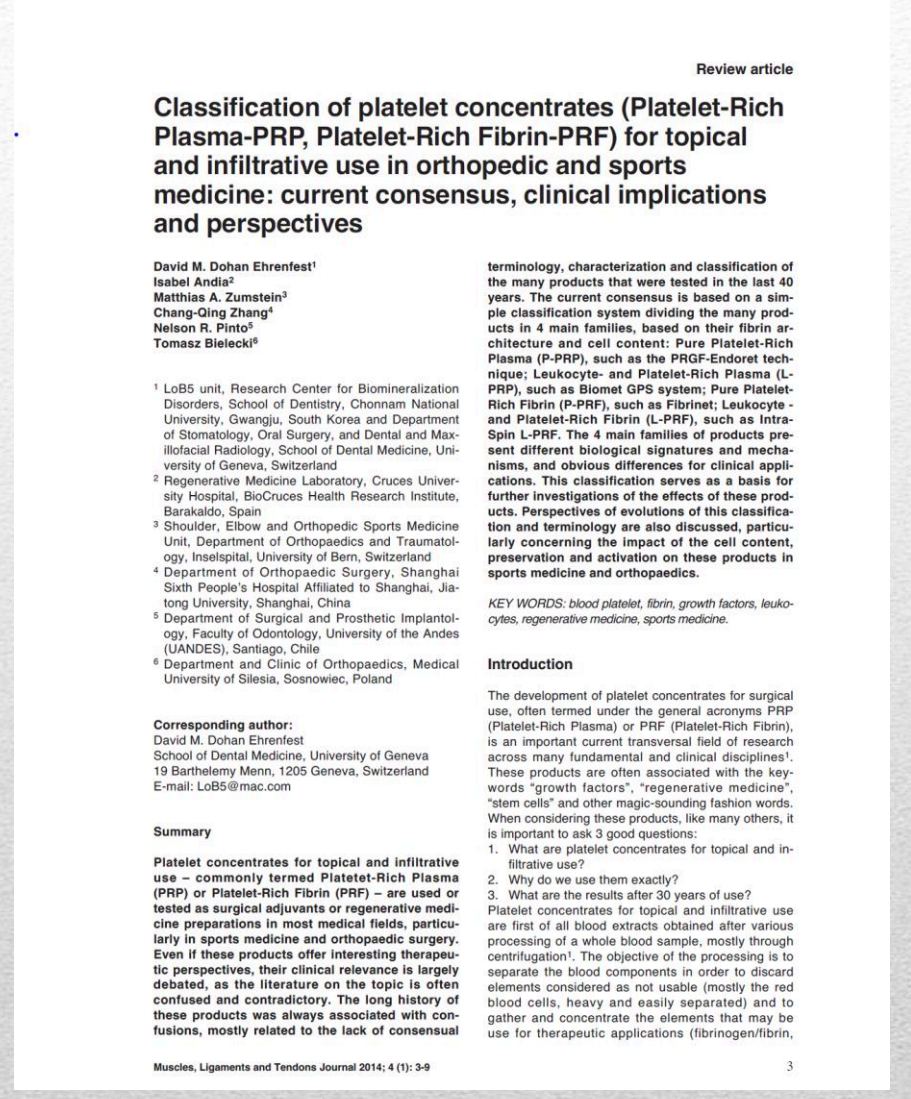
PRP has **not been standardized**, and may not be standardized for a while.

- Different preparation equipment, different patient blood concentrations and different conditions require specific and little understood PRP formulas.

There are **thousands of studies**, and **many disagree** with regards to preparation **specifics**.

- Regarding centrifugation parameters, anticoagulants, activation guidelines, temperature control, etc.

"Many confusions between the techniques and a lack of accurate characterization of the tested products …….leading to a huge literature of thousands of articles constituting a "**blind library of knowledge**"



Review article

Classification of platelet concentrates (Platelet-Rich Plasma-PRP, Platelet-Rich Fibrin-PRF) for topical and infiltrative use in orthopedic and sports medicine: current consensus, clinical implications and perspectives

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Summary

Platelet concentrates for topical and infiltrative use – commonly termed Platetet-Rich Plasma (PRP) or Platelet-Rich Fibrin (PRF) – are used or tested as surgical adjuvants or regenerative medicine preparations in most medical fields, particularly in sports medicine and orthopaedic surgery. Even if these products offer interesting therapeutic perspectives, their clinical relevance is largely debated, as the literature on the topic is often confused and contradictory. The long history of these products was always associated with confusions, mostly related to the lack of consensual terminology, characterization and classification of the many products that were tested in the last 40 years. The current consensus is based on a simple classification system dividing the many products in 4 main families, based on their fibrin architecture and cell content: Pure Platelet-Rich Plasma (P-PRP), such as the PRGF-Endoret technique; Leukocyte- and Platelet-Rich Plasma (L-PRP), such as Biomet GPS system; Pure Platelet-Rich Fibrin (P-PRF), such as Fibrinet; Leukocyte - and Platelet-Rich Fibrin (L-PRF), such as Intra-Spin L-PRF. The 4 main families of products present different biological signatures and mechanisms, and obvious differences for clinical applications. This classification serves as a basis for further investigations of the effects of these products. Perspectives of evolutions of this classification and terminology are also discussed, particularly concerning the impact of the cell content, preservation and activation on these products in sports medicine and orthopaedics.

KEY WORDS: blood platelet, fibrin, growth factors, leukocytes, regenerative medicine, sports medicine.

Introduction

The development of platelet concentrates for surgical use, often termed under the general acronyms PRP (Platelet-Rich Plasma) or PRF (Platelet-Rich Fibrin), is an important current transversal field of research across many fundamental and clinical disciplines[1]. These products are often associated with the keywords "growth factors", "regenerative medicine", "stem cells" and other magic-sounding fashion words. When considering these products, like many others, it is important to ask 3 good questions:

1. What are platelet concentrates for topical and infiltrative use?
2. Why do we use them exactly?
3. What are the results after 30 years of use?

Platelet concentrates for topical and infiltrative use are first of all blood extracts obtained after various processing of a whole blood sample, mostly through centrifugation[1]. The objective of the processing is to separate the blood components in order to discard elements considered as not usable (mostly the red blood cells, heavy and easily separated) and to gather and concentrate the elements that may be use for therapeutic applications (fibrinogen/fibrin,

BUT … what we know is that **IT WORKS**

In our office we have **reviewed hundreds of articles** and have **prepared dozens of protocols** an we will be sharing some of our results which, we have applied clinically with **great outcome**.

Let us review briefly a couple of **preparatory steps** that affect the **PRP efficacy** and then we will look at the **latest generations** of PRP preparation that **we can use despite many ongoing controversies**.

“Under the Surface” Understanding

Using current PRP standards, **very high centripetal forces** are applied to extract PRP

Despite correctional measures, preparation is still **hindered**

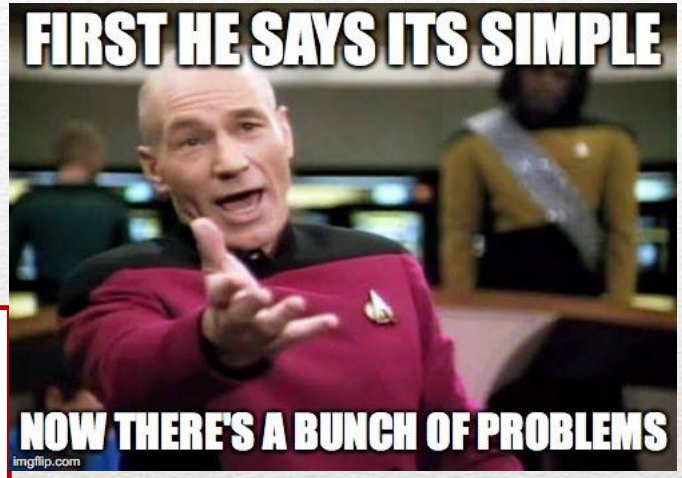
Unfavorable membrane effects:

- Sheering
- Deformation
- Premature Activation

Hindrance factors:

- Acidity (from ACDA)
- Tissue Factor
- Inhibition of plasma
- Temperature gradients

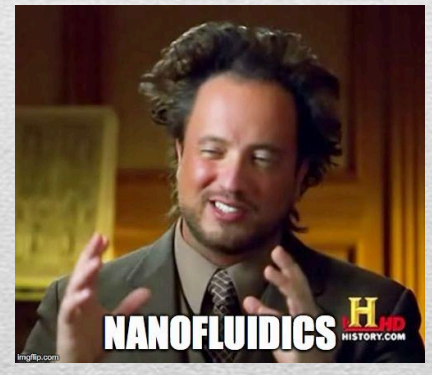
High Speeds and Blind Protocols!!!



~~Problems~~

Information!

After reviewing numerous protocols and consulting with nanofluidics experts, I want you to have these **takeaways**:



Residual activation and preparation time are important for buoyancy effects and photopheresis (ECP).

GENTLE PREPARATION IS ESSENTIAL
to begin managing and understanding good platelet dynamics and effects.

The community is fraught with dozens of protocols.

None of these factors have been totally analyzed and accounted for.

However … **AWARENESS IS GROWING**.

High speed centrifugation → large centripetal forces → causes problems.

Compacting platelets destroys their shape, reduces activity, and triggers unknown early mechanisms.

Anticoagulant acidity destroys the tissue.

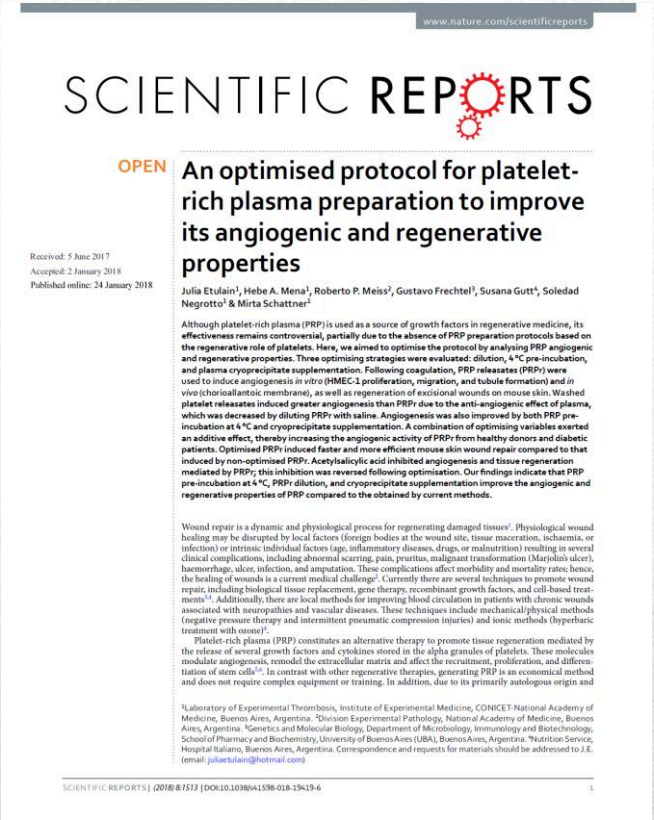
So How to make it better?

Not difficult really…

Stop the Tissue Factor:

- Tissue damage exposes blood to tissue factor
- Coagulation cascade: series of enzymatic reactions leading to thrombin formation
- takes place mainly on membrane surface, eg platelet membrane
- Thrombin converts fibrinogen to fibrin
- Fibrin polymerizes and becomes crosslinked
- Tissue factor: Ubiquitous lipoprotein (part of cell membrane)
- Initiates physiologic clotting process
- Highest concentration in brain, mucous membranes, skin, and immediately outside blood vessels
- Forms "hemostatic envelope"
- Not normally found on endothelial cells lining blood vessels, or on circulating blood cells
- **So we discard first 2 cc of WB drawn when preparing PRP (Fact. X)**

Making it better



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An optimised protocol for platelet-rich plasma preparation to improve its angiogenic and regenerative properties

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Julia Etulain[1], Hebe A. Mena[1], Roberto P. Meiss[2], Gustavo Frechtel[3], Susana Gutt[4], Soledad Negrotto[1] & Mirta Schattner[1]

Although platelet-rich plasma (PRP) is used as a source of growth factors in regenerative medicine, its effectiveness remains controversial, partially due to the absence of PRP preparation protocols based on the regenerative role of platelets. Here, we aimed to optimise the protocol by analysing PRP angiogenic and regenerative properties. Three optimising strategies were evaluated: dilution, 4 °C pre-incubation, and plasma cryoprecipitate supplementation. Following coagulation, PRP releasates (PRPr) were used to induce angiogenesis *in vitro* (HMEC-1 proliferation, migration, and tubule formation) and *in vivo* (chorioallantoic membrane), as well as regeneration of excisional wounds on mouse skin. Washed platelet releasates induced greater angiogenesis than PRPr due to the anti-angiogenic effect of plasma, which was decreased by diluting PRPr with saline. Angiogenesis was also improved by both PRP pre-incubation at 4 °C and cryoprecipitate supplementation. A combination of optimising variables exerted an additive effect, thereby increasing the angiogenic activity of PRPr from healthy donors and diabetic patients. Optimised PRPr induced faster and more efficient mouse skin wound repair compared to that induced by non-optimised PRPr. Acetylsalicylic acid inhibited angiogenesis and tissue regeneration mediated by PRPr; this inhibition was reversed following optimisation. Our findings indicate that PRP pre-incubation at 4 °C, PRPr dilution, and cryoprecipitate supplementation improve the angiogenic and regenerative properties of PRP compared to the obtained by current methods.

Wound repair is a dynamic and physiological process for regenerating damaged tissues[1]. Physiological wound healing may be disrupted by local factors (foreign bodies at the wound site, tissue maceration, ischaemia, or infection) or intrinsic individual factors (age, inflammatory diseases, drugs, or malnutrition) resulting in several clinical complications, including abnormal scarring, pain, pruritus, malignant transformation (Marjolin's ulcer), haemorrhage, ulcer, infection, and amputation. These complications affect morbidity and mortality rates; hence, the healing of wounds is a current medical challenge[2]. Currently there are several techniques to promote wound repair, including biological tissue replacement, gene therapy, recombinant growth factors, and cell-based treatments[3,4]. Additionally, there are local methods for improving blood circulation in patients with chronic wounds associated with neuropathies and vascular diseases. These techniques include mechanical/physical methods (negative pressure therapy and intermittent pneumatic compression injuries) and ionic methods (hyperbaric treatment with ozone)[4].

Platelet-rich plasma (PRP) constitutes an alternative therapy to promote tissue regeneration mediated by the release of several growth factors and cytokines stored in the alpha granules of platelets. These molecules modulate angiogenesis, remodel the extracellular matrix and affect the recruitment, proliferation, and differentiation of stem cells[5,6]. In contrast with other regenerative therapies, generating PRP is an economical method and does not require complex equipment or training. In addition, due to its primarily autologous origin and

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- "Washed platelet **releasates** (type of protein) induced greater angiogenesis than PRPr due to the anti-angiogenic effect of plasma".

- Cold preconditioning, plasma cryoprecipitate supplementation, and dilution enhance angiogenesis mediated by PRPr. Seen by proliferation of HMEC-1 (human microvascular endothelial cell line)

Cool and Wash and Buffer

While VEGF, EGF, bFGF, IL-17, and IL-8 were partially released when PRP was incubated at 37 °C or 23 °C (20–60% of the total intra-platelet amount), **Total** secretion of these molecules was only achieved when PRP was incubated at 4 °C, indicating that cold preconditioning maximizes the release of platelet-derived pro-angiogenic molecules. In agreement with these results, proliferation of HMEC-1 triggered by PRPr obtained from PRP preconditioned at 4 °C was increased compared to that induced by PRP preconditioned at 37 °C.

Total Growth Factor release

A New Generation PRP: **PRF (Platelet Rich Fibrin)**

- In 2001, Choukroun *et al*., develops PRF in France.
- Production protocol of PRF attempts to accumulate platelets and released cytokines in a fibrin clot.
- The fibrin matrix supporting platelets and leukocyte cytokines is very helpful in constituting the determining elements responsible for real therapeutic potential of PRF.
    - But it was just that, a CLOT.

The classification is just that.

P-PRP (AKA leukocyte poor PRP), L-PRP (leukocyte and PRP)
P-PRF (pure PRF, Platelet Rich Fibrin), L-PRF(Leukocyte and PRF)

- They represent different biological signatures and mechanism
- To exemplify the L-PRP released all GF in 1 hour and the L-PRF remained solid and released GF over 1 week!

PubMed

Format: Abstract

Full text links

J Periodontol. 2017 Jan;88(1):112-121. Epub 2016 Sep 2.

Optimized Platelet-Rich Fibrin With the Low-Speed Concept: Growth Factor Release, Biocompatibility, and Cellular Response.

Fujioka-Kobayashi M[1,2,3], Miron RJ[1], Hernandez M[1], Kandalam U[4], Zhang Y[5], Choukroun J[6].

Author information

Abstract

BACKGROUND: Over the past decade, use of leukocyte platelet-rich fibrin (L-PRF) has gained tremendous momentum in regenerative dentistry as a low-cost fibrin matrix used for tissue regeneration. This study characterizes how centrifugation speed (G-force) along with centrifugation time influence growth factor release from fibrin clots, as well as the cellular activity of gingival fibroblasts exposed to each PRF matrix.

METHODS: Standard L-PRF served as a control (2,700 revolutions per minute [rpm]-12 minutes). Two test groups using low-speed (1,300 rpm-14 minutes, termed advanced PRF [A-PRF]) and low-speed + time (1,300 rpm-8 minutes; A-PRF+) were investigated. Each PRF matrix was tested for growth factor release up to 10 days (eight donor samples) as well as biocompatibility and cellular activity.

RESULTS: The low-speed concept (A-PRF, A-PRF+) demonstrated a significant increase in growth factor release of platelet-derived growth factor (PDGF), transforming growth factor (TGF)-β1, epidermal growth factor, and insulin-like growth factor, with A-PRF+ being highest of all groups. Although all PRF formulations were extremely biocompatible due to their autogenous sources, both A-PRF and A-PRF+ demonstrated significantly higher levels of human fibroblast migration and proliferation compared with L-PRF. Furthermore, gingival fibroblasts cultured with A-PRF+ demonstrated significantly higher messenger RNA (mRNA) levels of PDGF, TGF-β, and collagen1 at either 3 or 7 days.

CONCLUSIONS: The findings from the present study demonstrate modifications to centrifugation speed and time with the low-speed concept favor an increase in growth factor release from PRF clots. This, in turn, may directly influence tissue regeneration by increasing fibroblast migration, proliferation, and collagen mRNA levels. Future animal and clinical studies are now necessary.

KEYWORDS: Blood; blood platelets; fibrin; fibroblasts; regeneration; wound healing

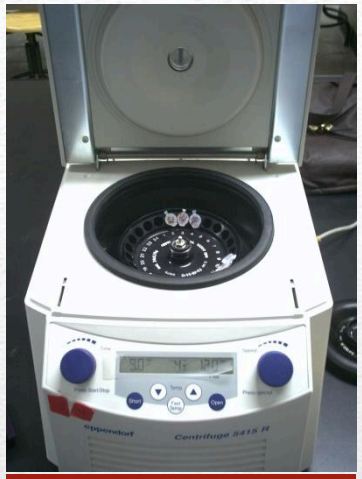
PMID: 27587367 DOI: 10.1902/jop.2016.160443

[Indexed for MEDLINE]

Speed ?

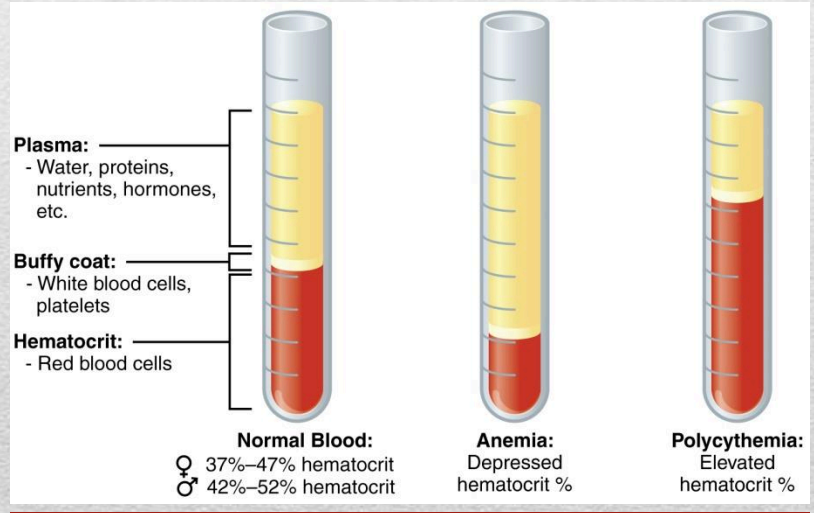
NO NO!!!!

Blood Drawn

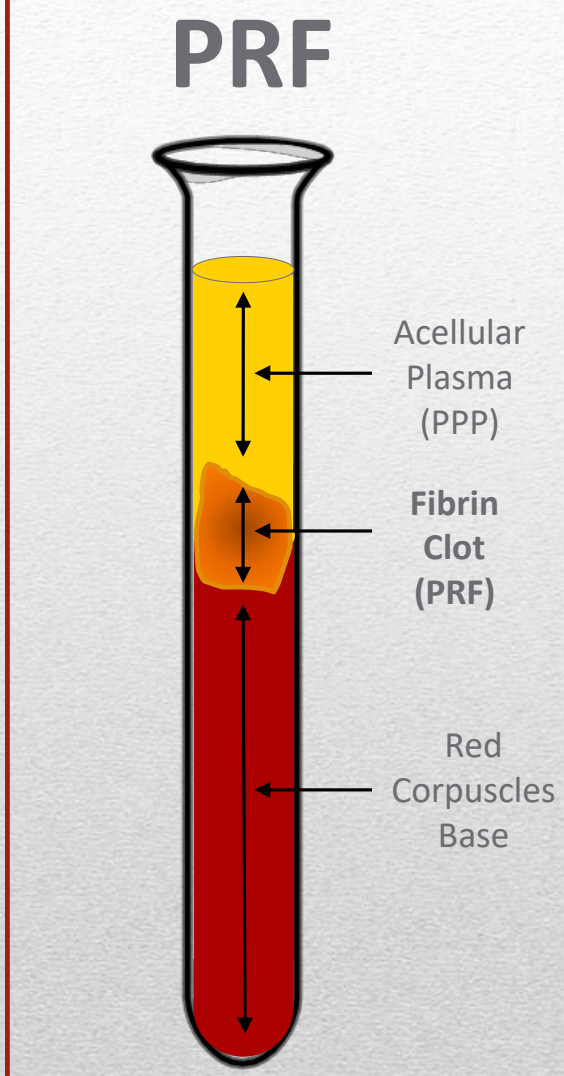


Centrifugation

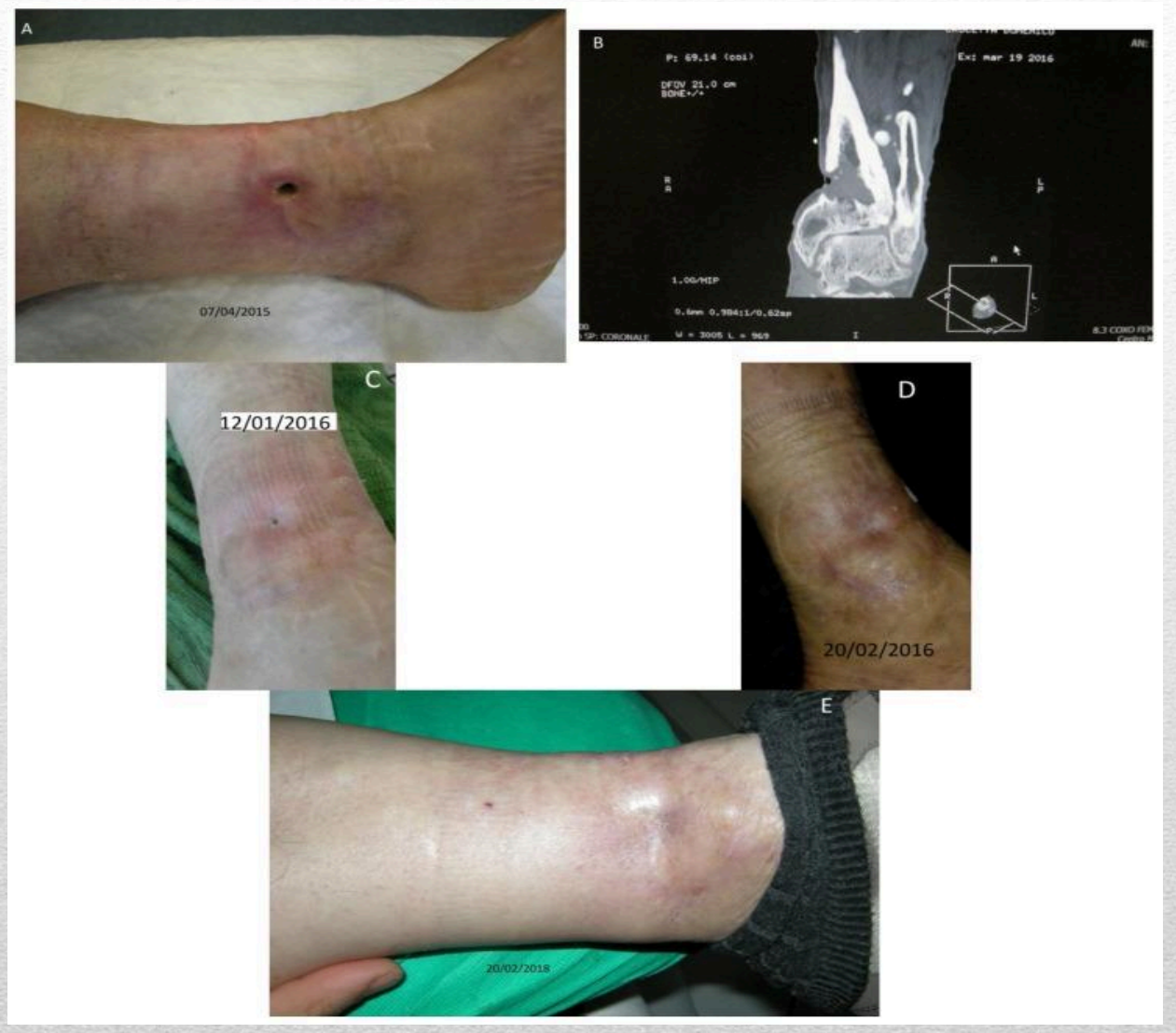
Components



Layers: Plasma, Buffy, Hct



- So in our Research we have a modified Choukroun PRF, also named LP-PRF (liquid phase PRF)
- Using a **low velocity of spin** and time conditions, we delay fibrinogen activation (by using the appropriate tubes) and have observed great results.
- The centripetal force generated is close to 130 g and does not activate the platelets for 10 minutes, using a Bio-Gen tube (Greiner Bio-one). It is a single spin, safe without added manipulation of blood or serum and reproducible.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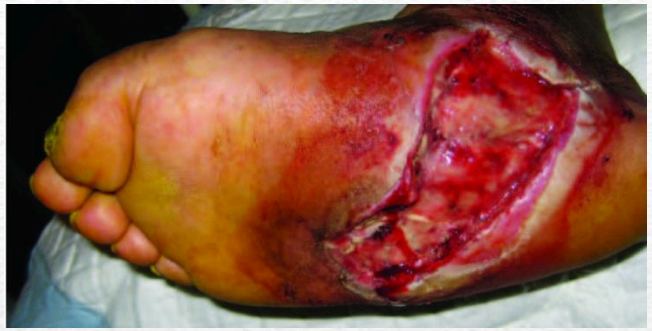
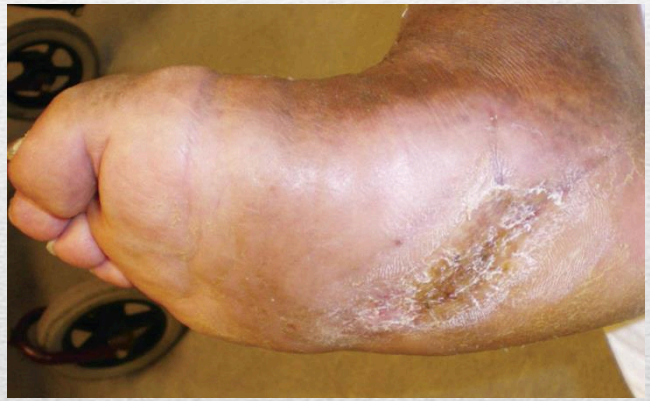
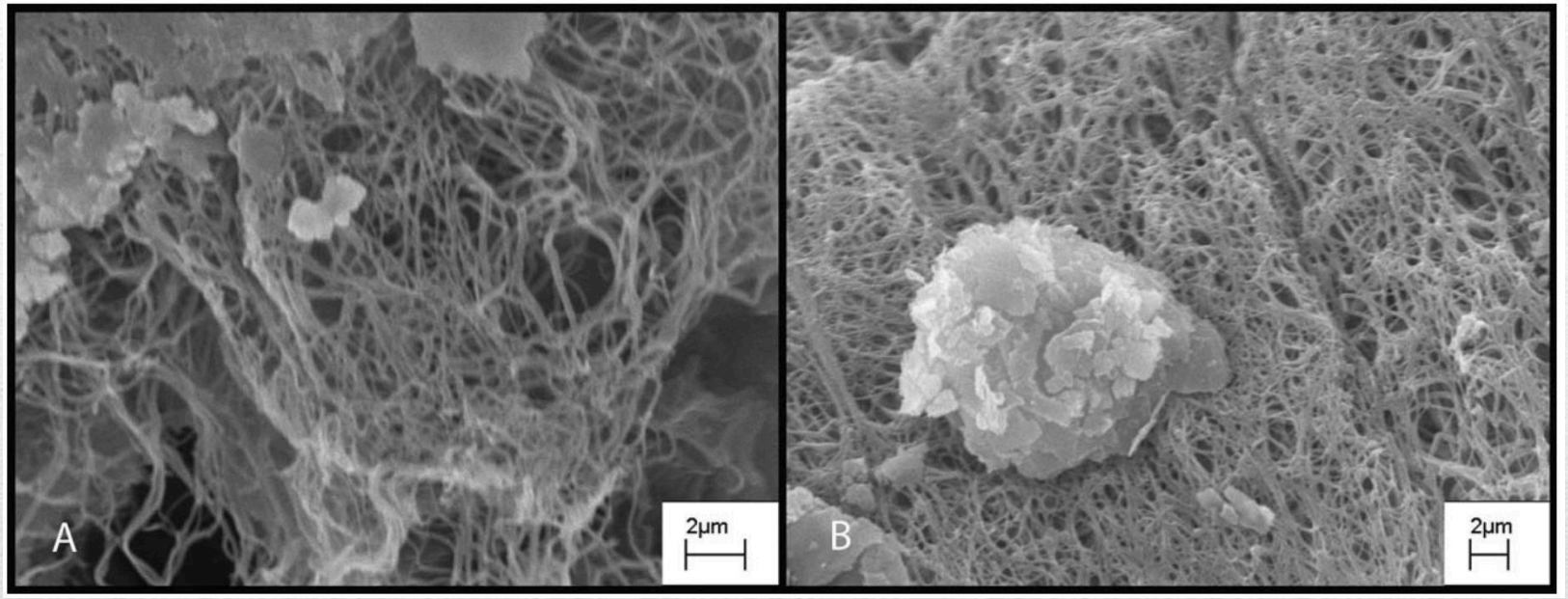




How can PRF do that?

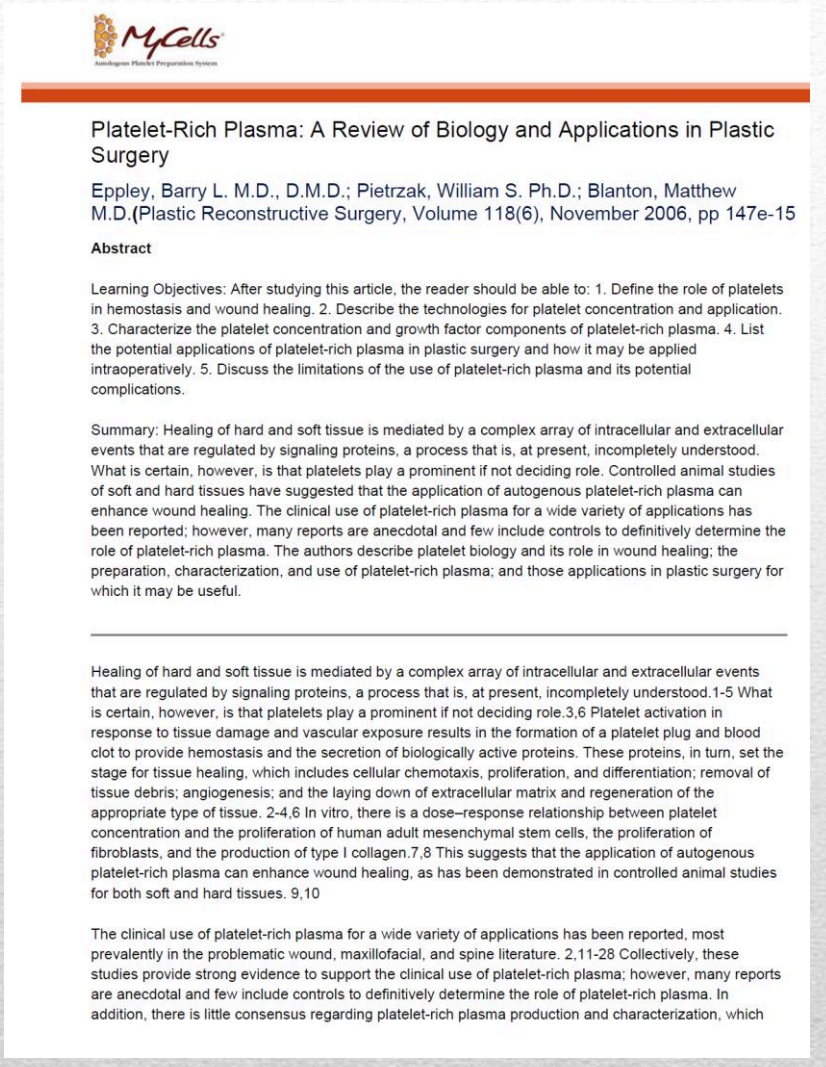
- **PRF**



This present study demonstrate modifications to centrifugation speed and time with the **low-speed concept** favor an increase in growth factor release from PRF clots. This, in turn, may directly influence tissue regeneration by increasing fibroblast migration, proliferation, and collagen mRNA levels.

Advantages of PRF over PRP

1. Handling of Blood Not Required
2. Simplified & Cost-Effective Process
3. Use of Bovine Thrombin and Anticoagulants Not Required
4. Favorable Healing Due to Slow Polymerization
5. More Efficient Cell Migration and Proliferation
6. PRF Has Supportive Effect on Immune System.
7. PRF Supports Homeostasis



MyCells
Autologous Platelet Preparation System

Platelet-Rich Plasma: A Review of Biology and Applications in Plastic Surgery

Eppley, Barry L. M.D., D.M.D.; Pietrzak, William S. Ph.D.; Blanton, Matthew M.D.(Plastic Reconstructive Surgery, Volume 118(6), November 2006, pp 147e-15

Abstract

Learning Objectives: After studying this article, the reader should be able to: 1. Define the role of platelets in hemostasis and wound healing. 2. Describe the technologies for platelet concentration and application. 3. Characterize the platelet concentration and growth factor components of platelet-rich plasma. 4. List the potential applications of platelet-rich plasma in plastic surgery and how it may be applied intraoperatively. 5. Discuss the limitations of the use of platelet-rich plasma and its potential complications.

Summary: Healing of hard and soft tissue is mediated by a complex array of intracellular and extracellular events that are regulated by signaling proteins, a process that is, at present, incompletely understood. What is certain, however, is that platelets play a prominent if not deciding role. Controlled animal studies of soft and hard tissues have suggested that the application of autogenous platelet-rich plasma can enhance wound healing. The clinical use of platelet-rich plasma for a wide variety of applications has been reported; however, many reports are anecdotal and few include controls to definitively determine the role of platelet-rich plasma. The authors describe platelet biology and its role in wound healing; the preparation, characterization, and use of platelet-rich plasma; and those applications in plastic surgery for which it may be useful.

Healing of hard and soft tissue is mediated by a complex array of intracellular and extracellular events that are regulated by signaling proteins, a process that is, at present, incompletely understood.1-5 What is certain, however, is that platelets play a prominent if not deciding role.3,6 Platelet activation in response to tissue damage and vascular exposure results in the formation of a platelet plug and blood clot to provide hemostasis and the secretion of biologically active proteins. These proteins, in turn, set the stage for tissue healing, which includes cellular chemotaxis, proliferation, and differentiation; removal of tissue debris; angiogenesis; and the laying down of extracellular matrix and regeneration of the appropriate type of tissue. 2-4,6 In vitro, there is a dose–response relationship between platelet concentration and the proliferation of human adult mesenchymal stem cells, the proliferation of fibroblasts, and the production of type I collagen.7,8 This suggests that the application of autogenous platelet-rich plasma can enhance wound healing, as has been demonstrated in controlled animal studies for both soft and hard tissues. 9,10

The clinical use of platelet-rich plasma for a wide variety of applications has been reported, most prevalently in the problematic wound, maxillofacial, and spine literature. 2,11-28 Collectively, these studies provide strong evidence to support the clinical use of platelet-rich plasma; however, many reports are anecdotal and few include controls to definitively determine the role of platelet-rich plasma. In addition, there is little consensus regarding platelet-rich plasma production and characterization, which

- Administering PRF weekly to a set of chronic lower extremity wounds (75 weeks) resulted in salvaging 78% from Limb Amputation!
- How much more do we need before using it…

LP-CGF…what's that?

- **Latest PRP preparation ?**

The LP-CGF (liquid phase concentrated growth factors)

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Biological Characterization and In Vitro Effects of Human Concentrated Growth Factor Preparation: An Innovative Approach to Tissue Regeneration

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Imagine ripping the GF off the platelets and injecting them as a solution, with stem cells too!

- A Larger, denser and richer growth factors fibrin matrix
- Started with Sacco 2006 and Choukroun 2006
- “Different individuals may require different platelet concentration ratios to achieve a comparable biological effect “
- CGF guarantees an immediate available free quantity of growth factors.
- Due to its higher strength and viscosity, CGF could better protect the growth factors from proteolysis, compared with PRP and PRF

The Optimal Autologous Scaffold

Indian Journal of Dermatology

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doi: 10.4103/0019-5154.159628

PMCID: PMC4601439
PMID: 26538718

Safety and Efficacy of Growth Factor Concentrate in the Treatment of Nasolabial Fold Correction: Split Face Pilot Study

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Abstract

Go to:

Background:

Go to:

Growth factors have long been known as an effective treatment for facial wrinkles. We developed growth factor concentrate (GFC) from the platelets and evaluated their clinical outcome in nasolabial folds.

Aims and Objectives:

Go to:

We evaluated safety and efficacy of autologous GFC on patients with nasolabial folds.

Materials and Methods:

Go to:

Study was conducted on 80 patients for nasolabial folds in two groups. Group I (20) received bilateral single injection of GFC and group II (60) received single injection of GFC on the right side of the face and platelet-rich plasma (PRP) on the left side of the face. Severity of nasolabial folds was determined at the baseline and 3 months of follow-up visits based on wrinkle severity rating scale (WSRS), Global aesthetic improvement scale (GAIS) and atlas photographic grading at rest and at full smile. Objective clinical assessment and subjective satisfaction scale was determined for overall improvement at the end of the study.

Results:

Go to:

In group I, 2 subjects showed improvement after GFC treatment with the score of 3.1–4 (76–100%), 3 subjects with the score of 2.1–3 (51–75%), 14 with the score of 1.1–2 (26–50%) and 1 subject with the score of 0–1 (<25%) at the end of study. In group II, 51 subjects were evaluated at the end of study where, 34 (66%) showed superior improvements after GFC, 6 (11%) patients showed similar improvement on both side of the face, 10 (19.6%) patients showed no noticeable improvement on the either side of the face and only 1 patient (1.96%) showed superior improvement for PRP at the end of the study. Overall improvement score analysis showed that GFC was significantly superior to PRP ($P < 0.001$).

Conclusion:

Go to:

Present study is a strong evidence to support the use of GFC for nasolabial folds. The results showed that the single application of GFC is highly effective and safe.

Keywords: *Acne scar*, *autologous*, *growth factor concentrates*, *nasolabial folds*, *platelets*

- Recent research clearly indicates that L-PRF (Leukocyte -Platelet Rich Fibrin, a second generation of platelet concentrates) significantly enhances wound healing in both soft and hard tissues, with complete Osteochondral defect repair.
- CGF is used successfully in Esthetics
- Continue to use PRP but modify settings to increase efficacy

Is PRP Linked to Cancer?

- MELBOURNE, Australia, March 2, 2016 /PRNewswire/ -- Propanc Health Group Corporation (OTCQB: PPCH) ("Propanc" or "the Company"), an emerging healthcare company focusing on development of new and proprietary treatments for cancer patients suffering from solid tumors such as pancreatic, ovarian and colorectal cancers, today announced results from recent studies for its lead product, PRP, confirming a synergistic response to a broad range of cancer indications, which also includes kidney, melanoma, brain, prostate, liver, uterine and lung cancers. **The data provides compelling evidence that PRP has the potential to fight a broad range of cancer types**, some with high unmet medical needs, which the Company will look towards investigating through clinical trials.

Simple steps to Improve Results

1st Method

Low Velocity

centripetal force extraction.

1350 RPM for **9.5 minutes**.

2nd Method

Use **heparin** or **sodium citrate** to avoid ACDA.

For **long procedures** where **anticoagulation is helpful**.

ACDA – acidity of exogenous substances.

Wash the platelets with **Cold** buffered **saline (39˚F)**

Simultaneously **reduces plasma anti-angiogenesis** effects and **improves the PRP regenerative effects**.

We examine our blood smears for clumping or deformities. **Using these methods, we have not observed any warning signs**. Although we don't have a PRP photo aggregometer, we are still seeing the results and following the consistent progress of our patients.

Helps attain reasonable quantities of platelet **without anticoagulant use**.

Regenerative surgery: requires an orchestrated number of biologic events, all this is simply offered by introducing autologous PRP, PRF or CGF all different but readily available preparations from a patient's own blood, inexpensive and simple.

What are we waiting for?

The accelerated tissue regeneration and healing, reduces suffering, complications and enhances the esthetics of post operative scars.

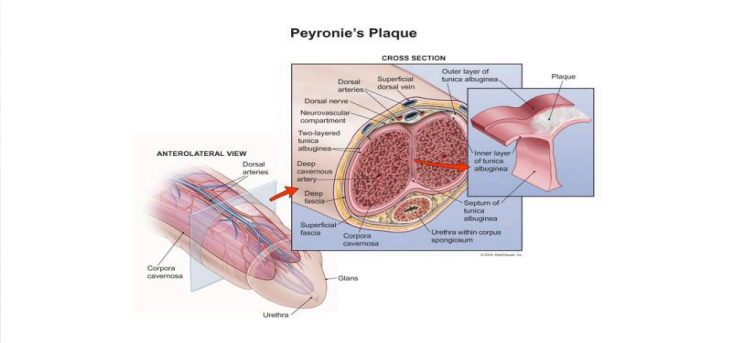
So we are using PRP for:

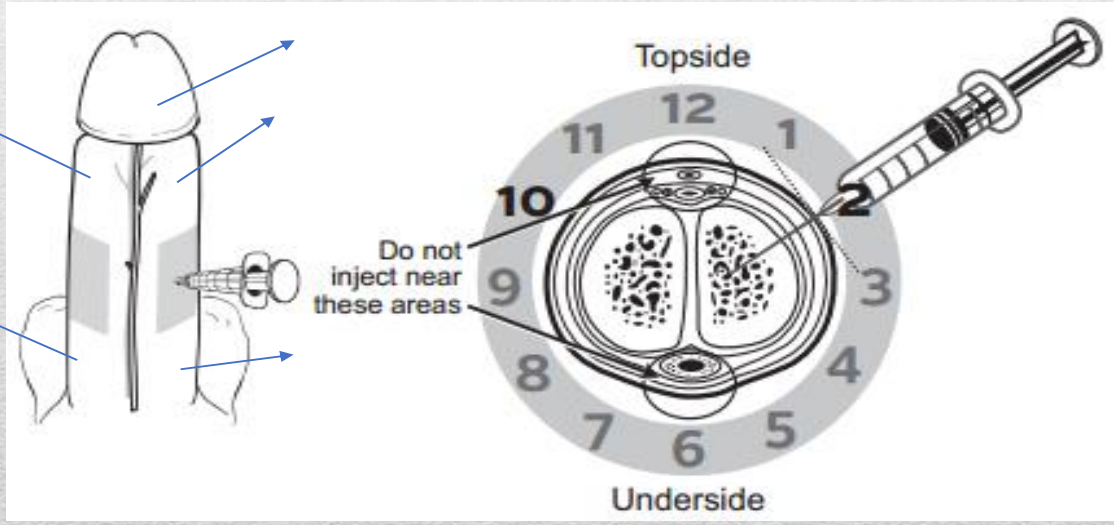
Facial volumization and rejuvenation (Vampire face)
Severe scar repair (ACNE,BURN)
Erectile Dysfunction
Female Uro-Genital dysfunctions
Joint Injections, arthropathies, Tendinopathies
COPD/Asthma
Hair Loss
Stretch Marks
Diabetic chronic wounds

Penis Injection:

9-10 cc total activated PRP.

BLT 2cc to dorsum cover w cellophane.





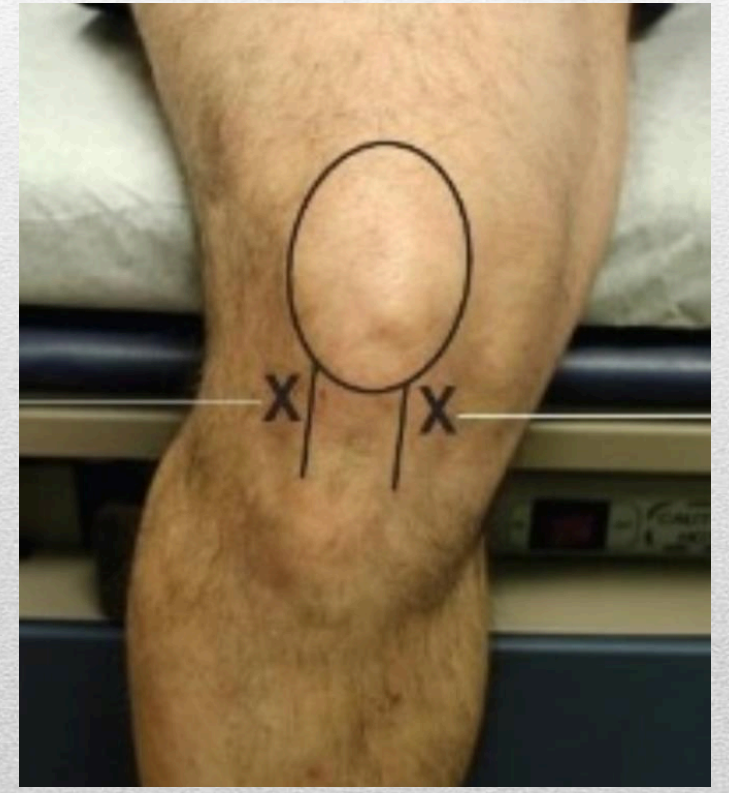
Activated PRP 2.5 ml base each side, 1.5 ml front shaft each side Corona 1 ml (total 9-10 ml). Venous constriction band x 15 min. Wait 2 min and apply pump for 5-10 min.

Ortho injections:

https://www.slideshare.net/rajivcolaco/corticosteroid-injections-in-orthopaedics

* **Clean, sterile gloves, 4 Betadine wiping preps**

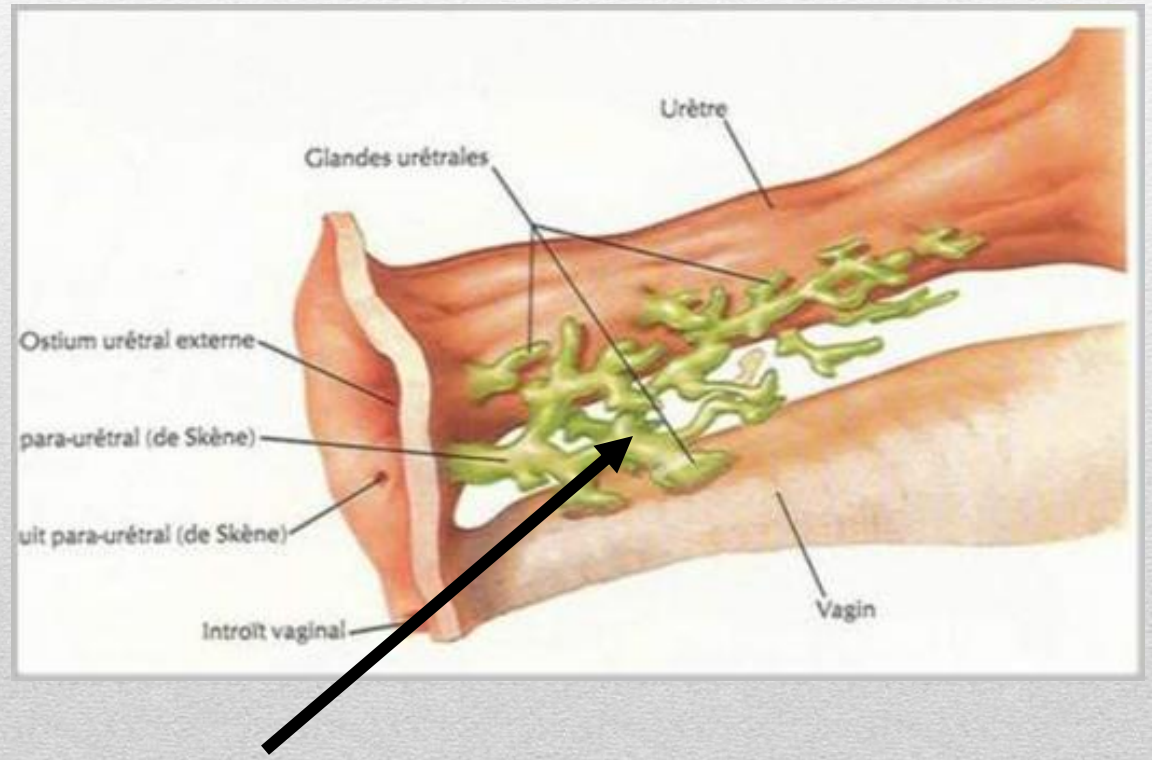
Review X-rays , communicate with treating physician.



Typically knee 4-7 cc PRP, better activated, we think.

****Close follow up for any complications****

The O-shot by the CMA association to improve urinary incontinence and orgasm in women.



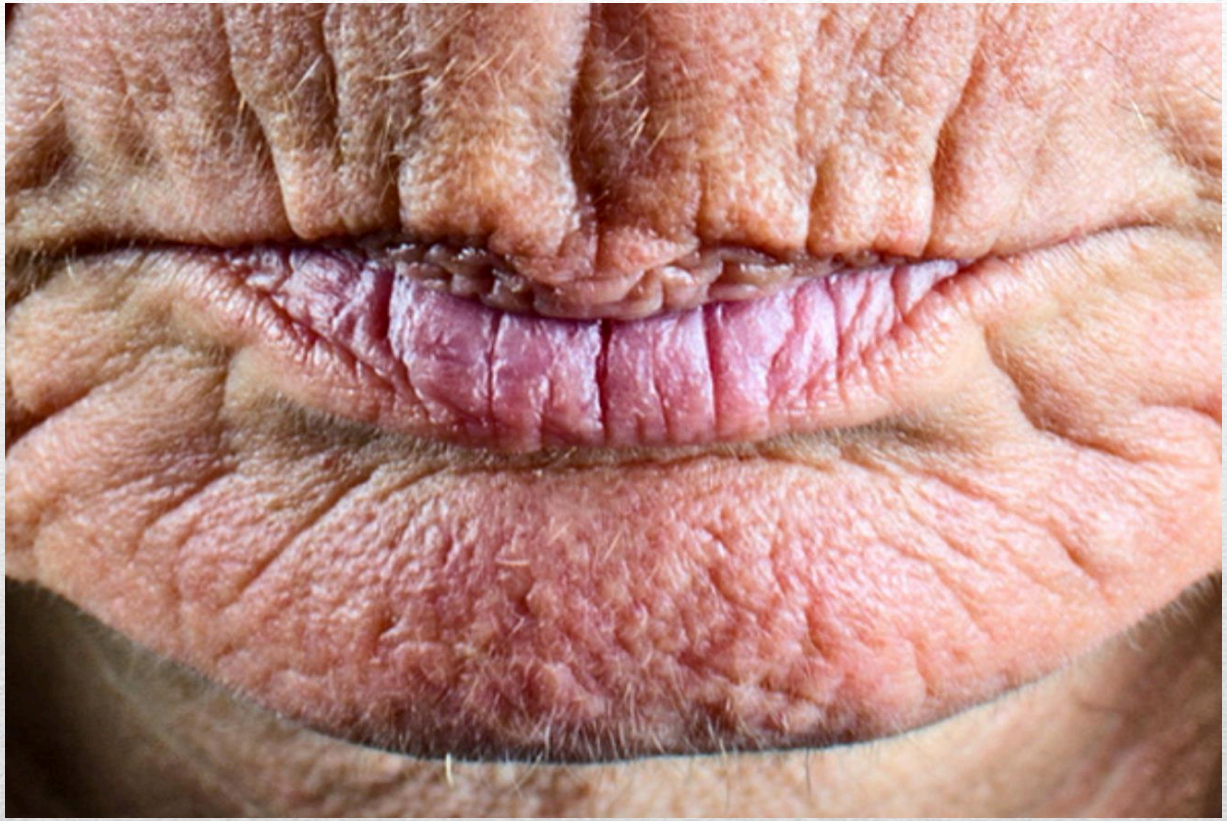
ALOPECIA :

Topical BLT 3 cc, wait 30 minutes and wash.

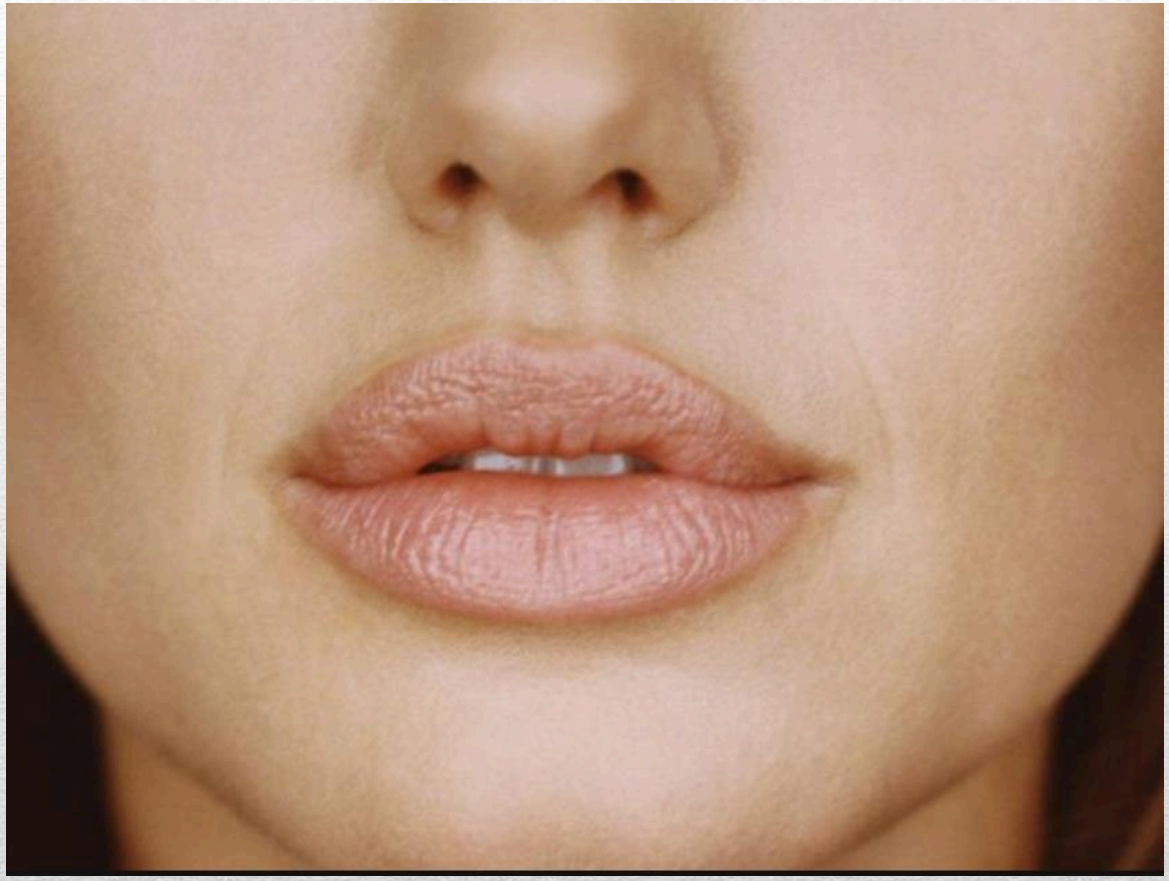
5 cc of PRP

2 mm deep,(use cut hub on needle). 1 cm apart, angle the injections, deliver .05 ml each, then use micro-needling one pass.

Apply LLLT same day if possible



Aging lips and Skin



Lips After PRP …

Thank you

Vincent Nacouzi, MD
Carolina Cellular Association

Question and Answer