

- **PST signals for motion**

**1<sup>st</sup> Meeting PST Brazil – March 24<sup>th</sup>, 2007**

**Data Analysis: Helio Zular Zveibil (PST Brazil)**

- A detailed analysis was made of the database: PST Brazil, emphasizing information that could be useful in prognosticating on treatment outcome.
- Please note: This study does not intend to be a substitute for a clinical evaluation, but is only an interpretation of the statistical data.

- Questions:

- What is the probability of improvement?
- If there is improvement, how much is it?
- What other information can we extract from the database: PST Brazil.

- **Database: PST Brasil (Osteoarthritis data only)**

- 882 patients evaluated immediately post - PST therapy
- 779 six weeks after
- 535 six months after
- 317 one year after

- This study focused mainly on the pain intensity scale

- The VAS (Visual Analog Scale) criteria used were:

- 0 for no pain
- 1 for light pain
- 2 for moderate pain
- 3 for severe pain
- 4 for extreme pain

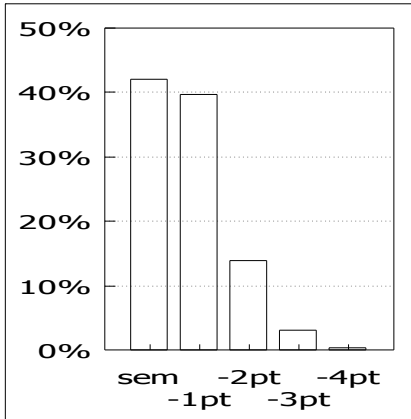
- Distribution by Joint:

Joint	%	# cases
Spine	40%	352
Knee	34%	299
Hip	17%	150
Others	9%	81
Total	100%	882

- Results immediately after PST Therapy

57% of the patients reported attenuation of pain

n=882

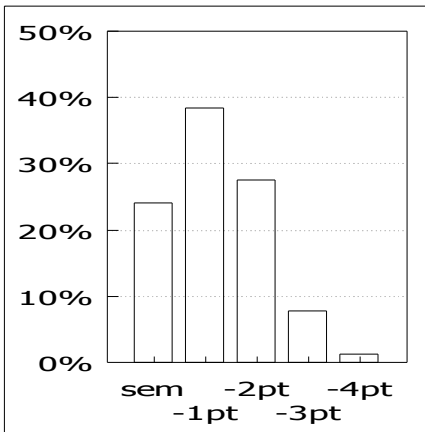


sem = no change  
 pt = one pain scale  
 -1pt = a drop of one pain scale on a scale from 0 - 4  
 -2pt = a drop of two pain scales on a scale from 0 - 4  
 -3pt = a drop of three pain scales on a scale from 0- 4  
 -4pt = a drop of four pain scales on a scale from 0 - 4

- Results 6 weeks after PST Therapy

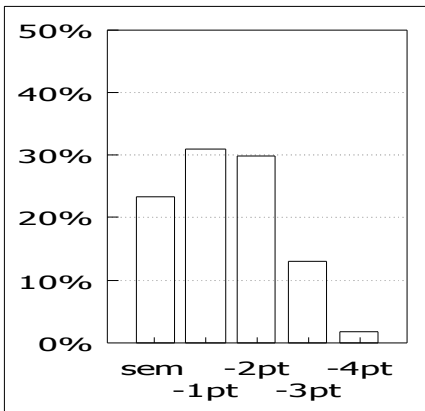
75% of the patients report attenuation of pain

n=779



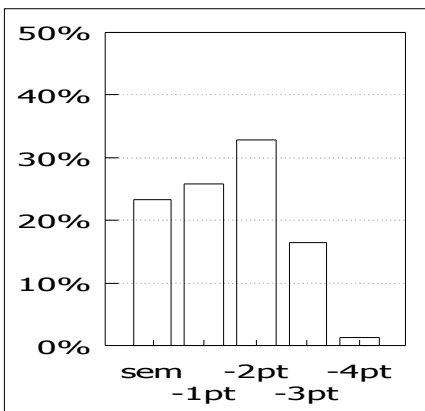
- Results 6 months after PST Therapy

76% of the patients report attenuation of pain  
n=535



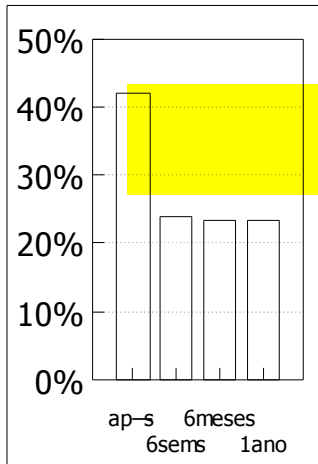
- Results 1 year after PST Therapy

76% of the patients report attenuation of pain  
n=317



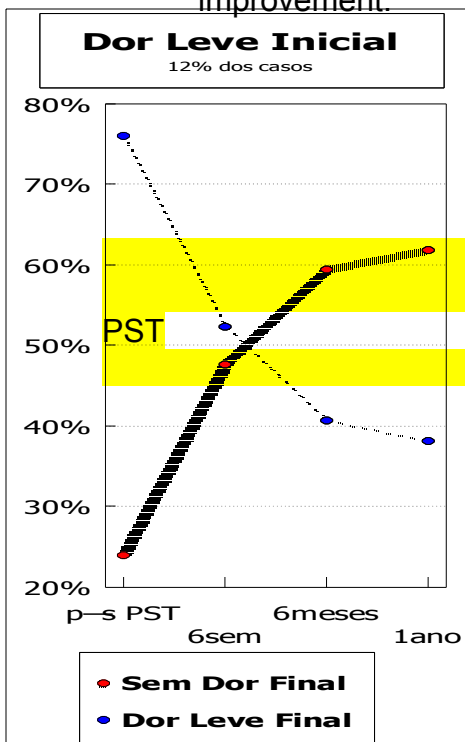
- Cases without improvement

If six weeks after PST Therapy, the patient does not show improvement, then the probability of a change in the symptoms will be remote.



Apos = immediately after  
 6 sems = 6 weeks  
 6 meses = 6 months  
 1 ano = 1 year

- Cases which show improvement.
  - How much can a patient improve?
  - To study this , we examine the level of pain intensity prior to treatment with PST Therapy
  - Patients with low initial pain intensity, have a 62% probability of improvement.

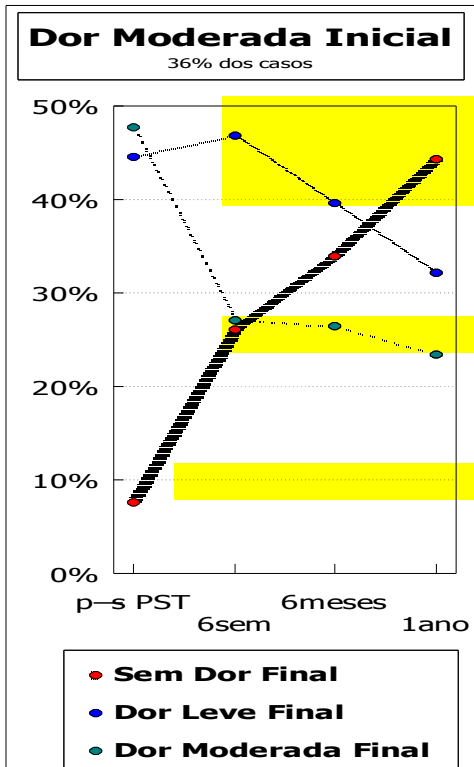


- 12% of cases start with low initial pain. Of these cases, 25% have no pain immediately after PST, but by one year 62% have no pain.

Sem dor final = without pain immediately after

Dor leve final = low pain immediately after

- Patients with MODERATE initial pain intensity, have a 76% probability of improvement, with 44% having total improvement.



36% of cases start with moderate levels of pain.  
 8% have no pain immediately post PST.  
 44% of these 36% of cases have no pain (total improvement)

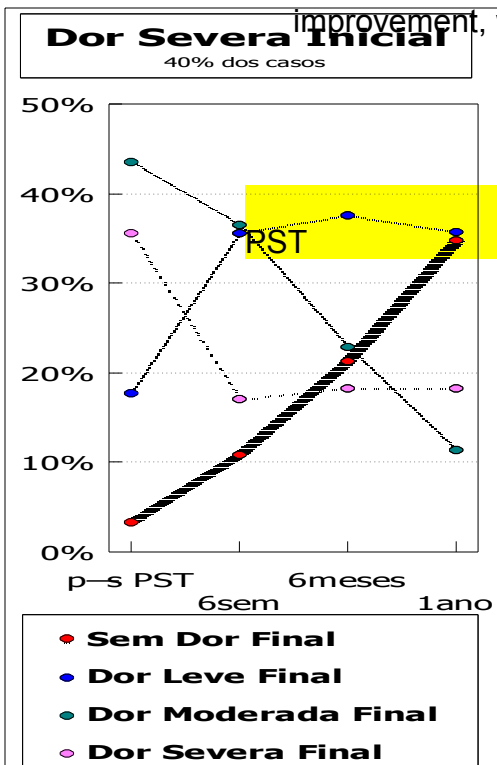
casos = patients

Sem dor final = without pain immediately after PST

Dor leve final = low pain immediately after PST

Dor moderada final = moderate pain immediately after PST

- Patients with SEVERE initial pain intensity have an 82% probability of improvement, with 35% having total improvement.



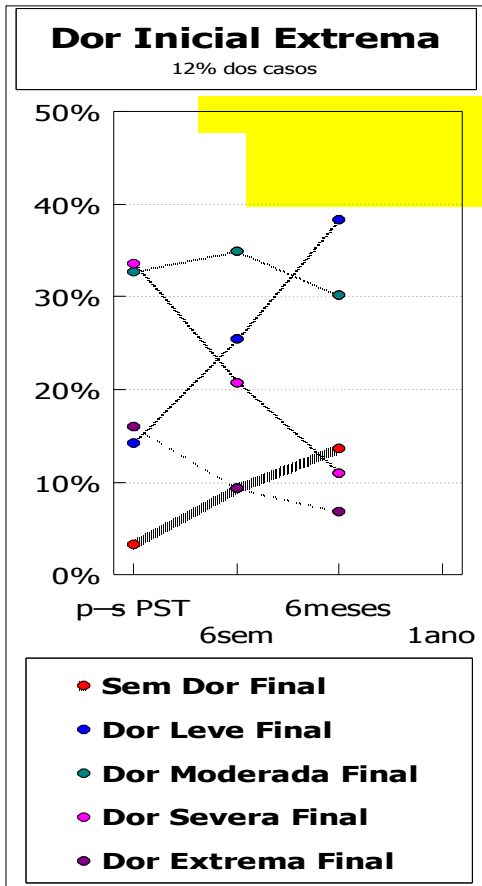
Sem dor final = without pain immediately after PST

Dor leve final = low pain immediately after PST

Dor moderada final = moderate pain immediately after PST

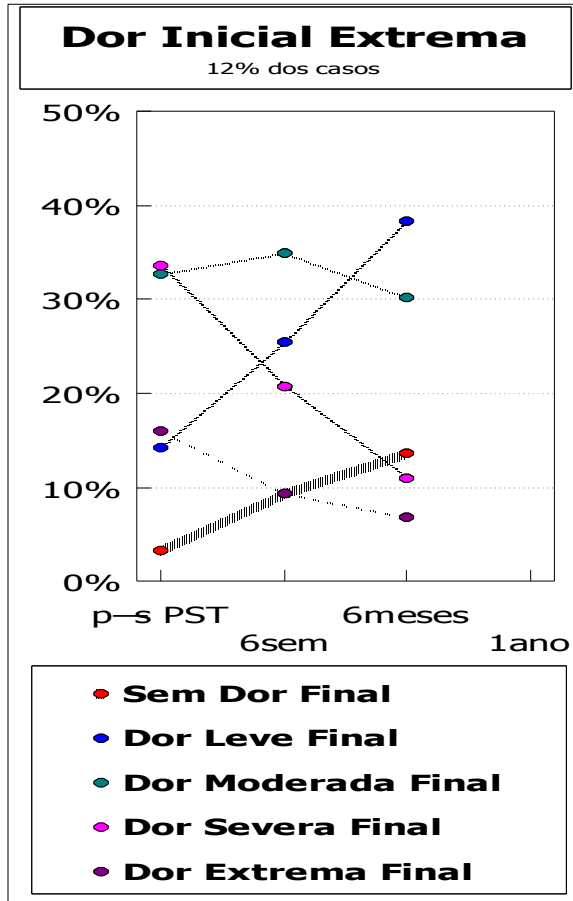
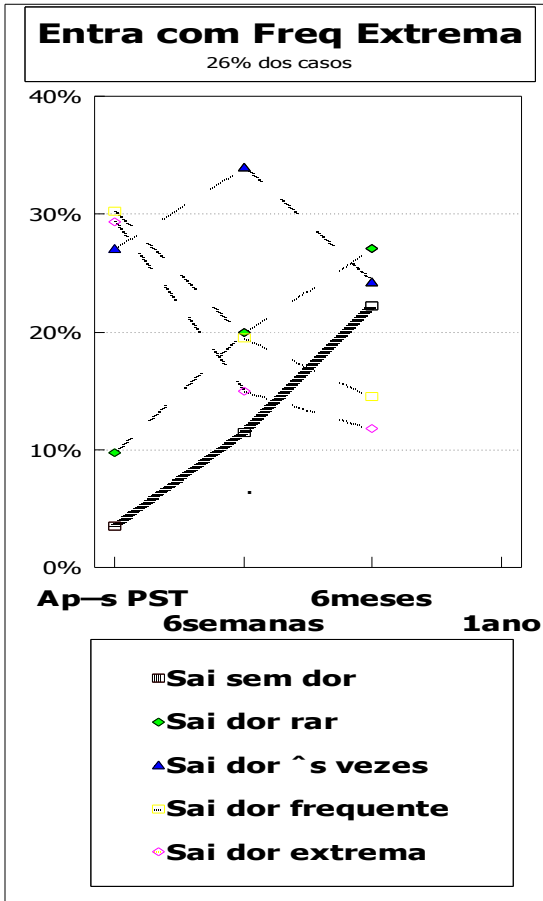
Dor severa final = Severe pain immediately after PST

- Patients with EXTREME initial pain intensity have a 93% probability of improvement, 14% having total improvement.



Sem dor final = without pain immediately after PST  
 Dor leve final = low pain immediately after PST  
 Dor moderada final = moderate pain immediately after PST  
 Dor severa final = Severe pain immediately after PST  
 Dor extrema final = Extreme pain immediately after PST

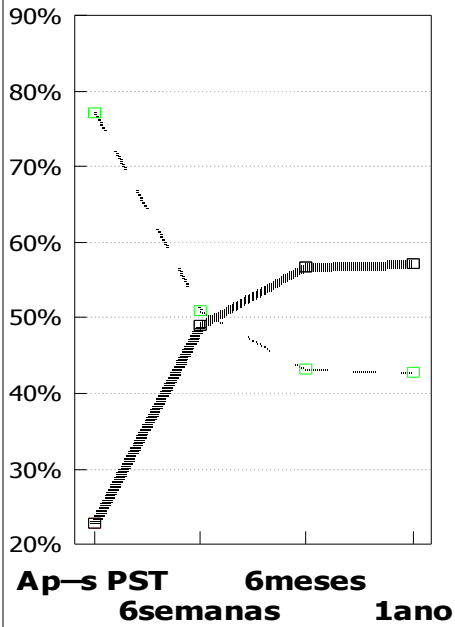
- Patients with EXTREME initial pain intensity have a 93% of probability of improvement, with 14% total, but if we examine pain frequency, it is observed that the total improvement can be 22% instead 14%



Entra com frequencia extrema = start with extreme pain frequency  
 Entra com frequencia = start with severe pain frequency  
 Entra com frequencia as vezes = start with moderate pain frequency  
 Entra com frequencia rara = start with slight pain frequency

### Entra com Freq Rara

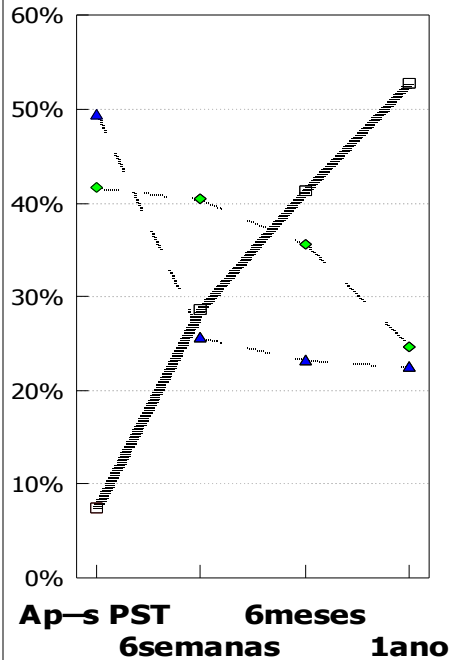
6% dos casos



▨ Sai sem Dor  
■ Sai dor rara

### Entra Freq ^s Vezez

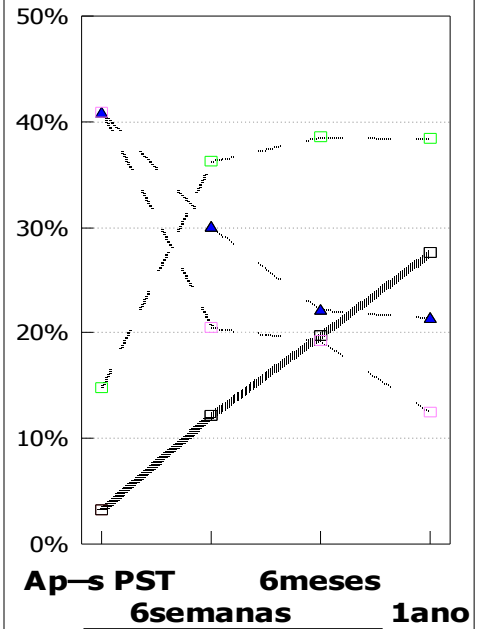
24% dos casos



▨ Sai sem dor  
◆ Sai dor rara  
▲ Sai dor ^s vezez

### Entra com Freq Yente

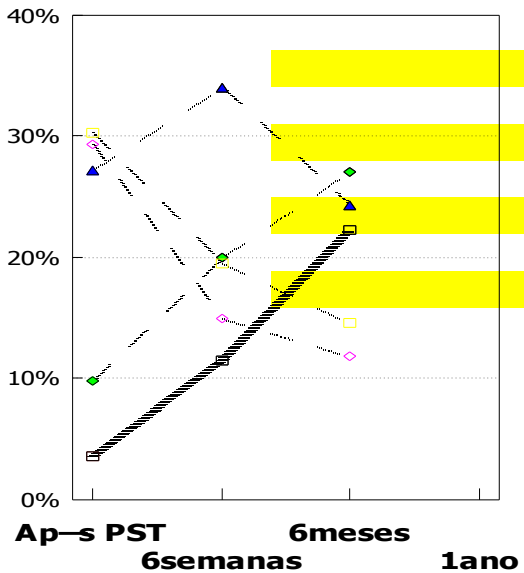
41% dos casos



▨ Sai sem dor  
■ Sai dor rara  
▲ Sai dor ^s vezez  
■ Sai dor frequente

### Entra com Freq Extrema

26% dos casos



▨ Sai sem dor  
◆ Sai dor rara  
▲ Sai dor ^s vezez  
■ Sai dor frequente  
◆ Sai dor extrema

Sai sem dor = immediately after PST with no pain.  
Sai dor rara = immediately after PST with seldom pain.

Sai dor as vezes = immediately after PST with sometimes pain.

Sai dor frequente = immediately after PST with often pain.

Sai dor extrema = immediately after PST with always pain.

- **Conclusions**

- 1 - 76% of PST patients will have attenuation in pain intensity.
- 2 - 24% will not have improvement in pain intensity. This prognostication is possible six weeks after PST Therapy.
- 3 – The higher the level of pain intensity before treatment, the greater the probability that PST will be successful.
- 4 - The lower the level of pain intensity before treatment, the lower the probability that PST will be successful.
- 5 - It can be affirmed that 58% of the patients will improve one or two points on the pain scale and 18% of the patients will improve three or four points.

- One more important comment: The results of PST are practically identical for all the joints.

Joints	%	#cases	After PST	6 weeks	6 months	1 year
Spine	40%	352	56	77	77	58
Knees	34%	299	58	74	78	80
Hips	17%	150	57	72	72	73
Others	9%	81	60	75	71	65
Total	100%	882				

THANKS.....

Helio Zular Zveibil is a scientist, author and businessman.