



# Le syndrome du « bébé secoué »

La violence du geste et son caractère volontaire



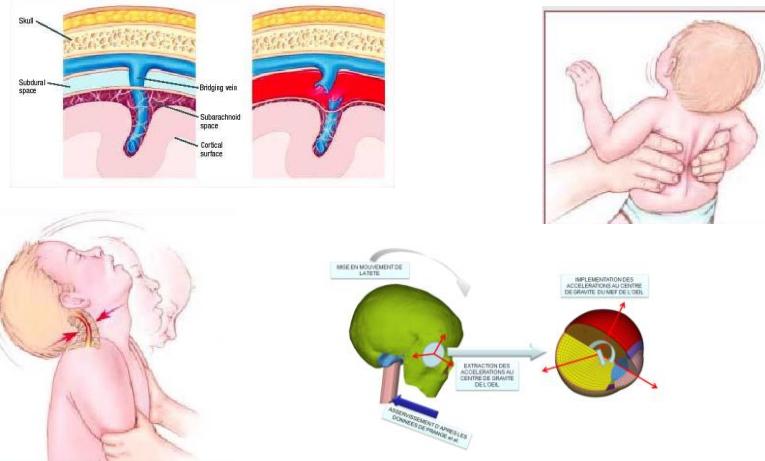
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Institut de Médecine Légale  
STRASBOURG



## « Le bébé secoué »

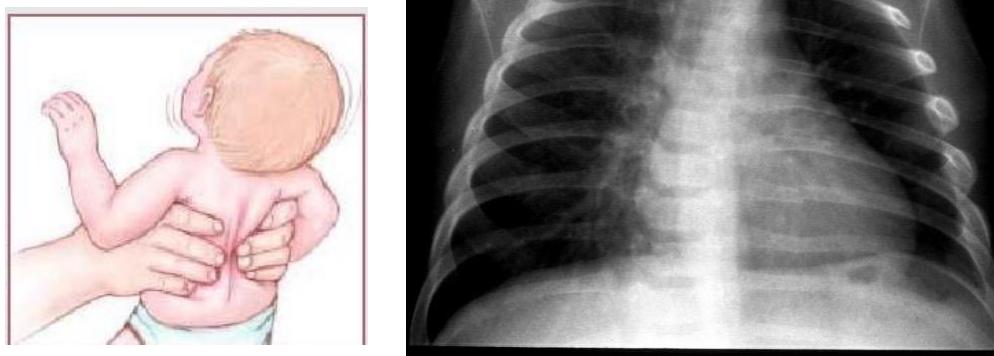
- « **enfants secoués** » : terme impropre, simplifié
- Norman Guthkelch - *British Medical Journal* - 1971 - Infantile Subdural Hematoma and its Relationship to Whiplash Injuries
- John Caffey --*Pediatrics* – 1974 - The Whiplash Shaken Infant Syndrome
  - Lésions cérébrales (hématomes sous-duraux aigus)
  - Lésions osseuses (thorax, os longs)
  - Lésions ophtalmologiques (hémorragies rétiennes)
- Récemment :
  - Lésions rachidiennes cervicales

## Description et origine des lésions



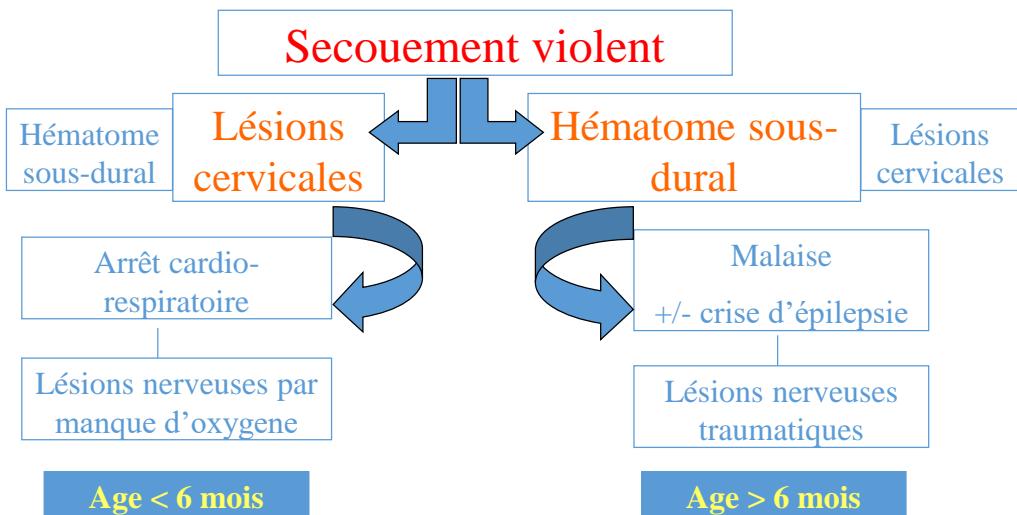
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## Les lésions osseuses



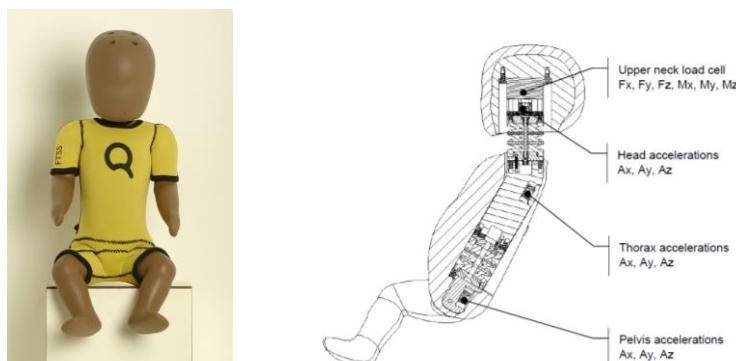
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# Présentation clinique fonction de l'âge



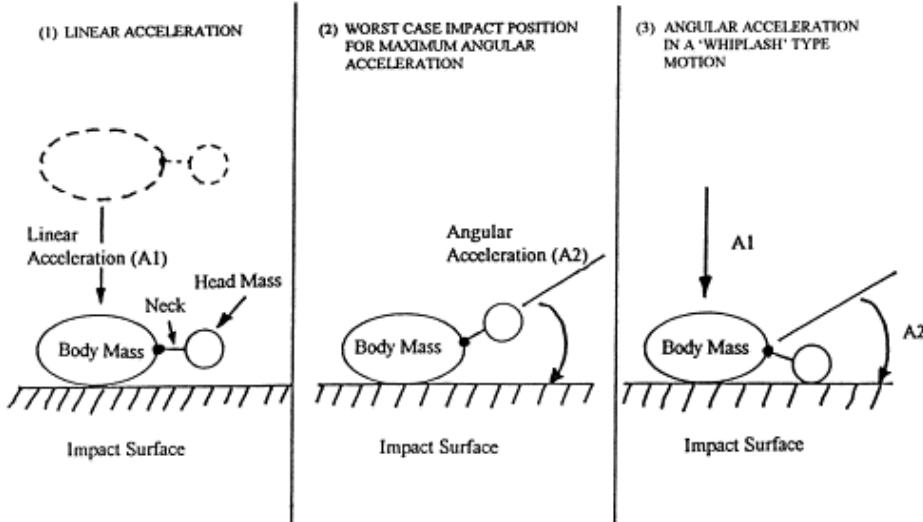
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# Etude biomécanique

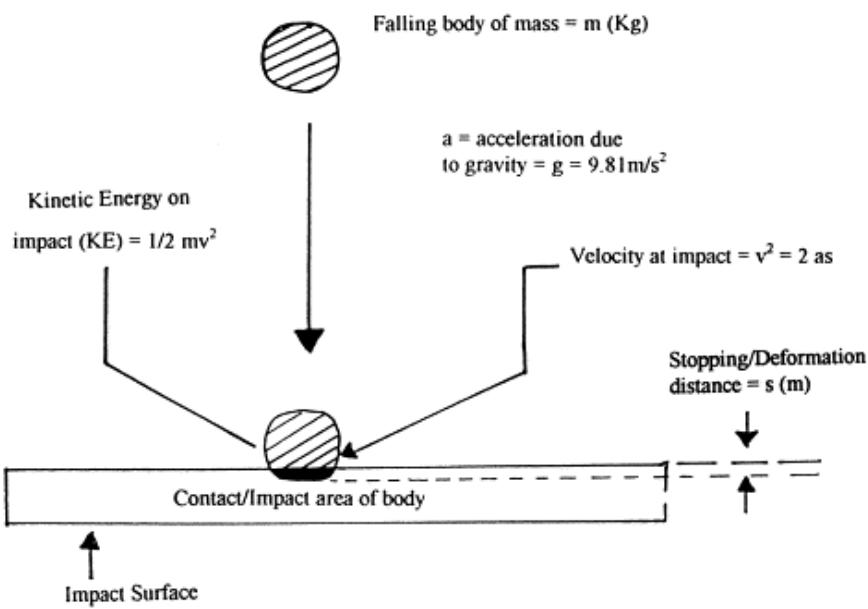


## Q0 : nouveau-né de 6 semaines

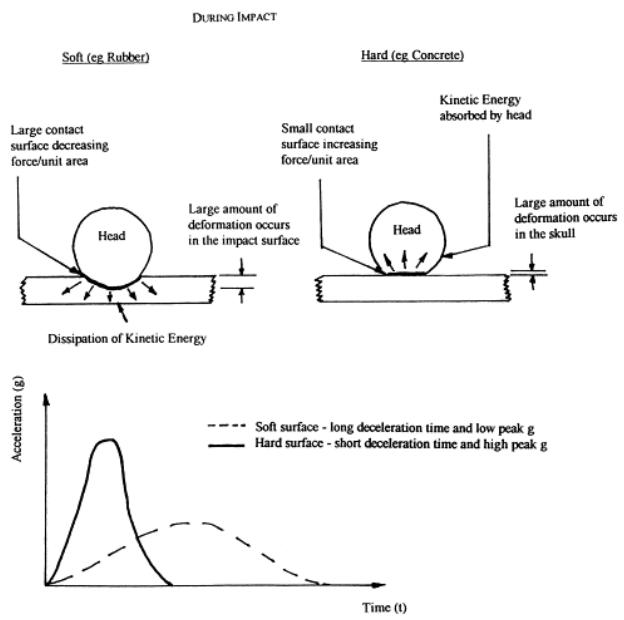
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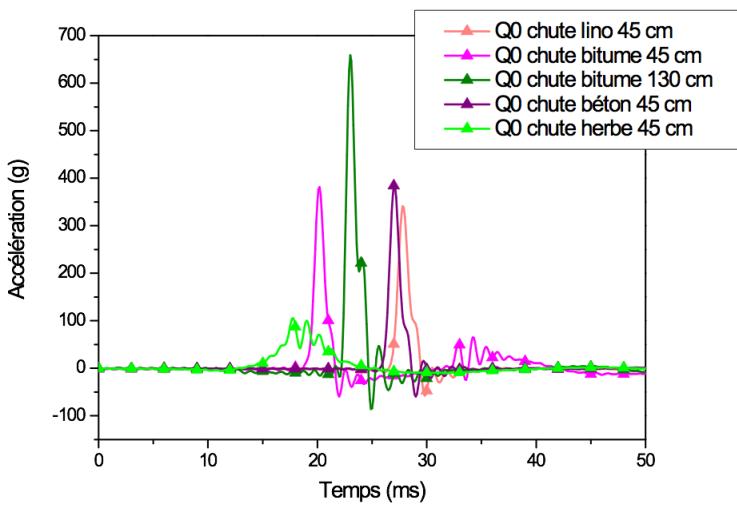
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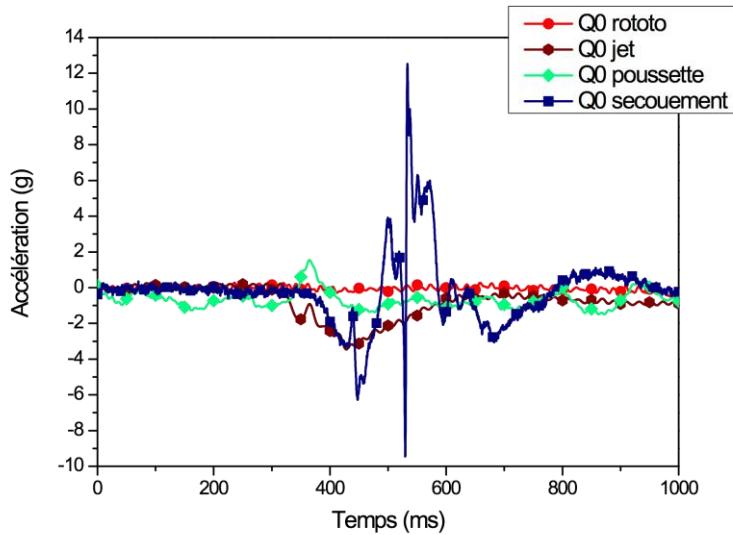
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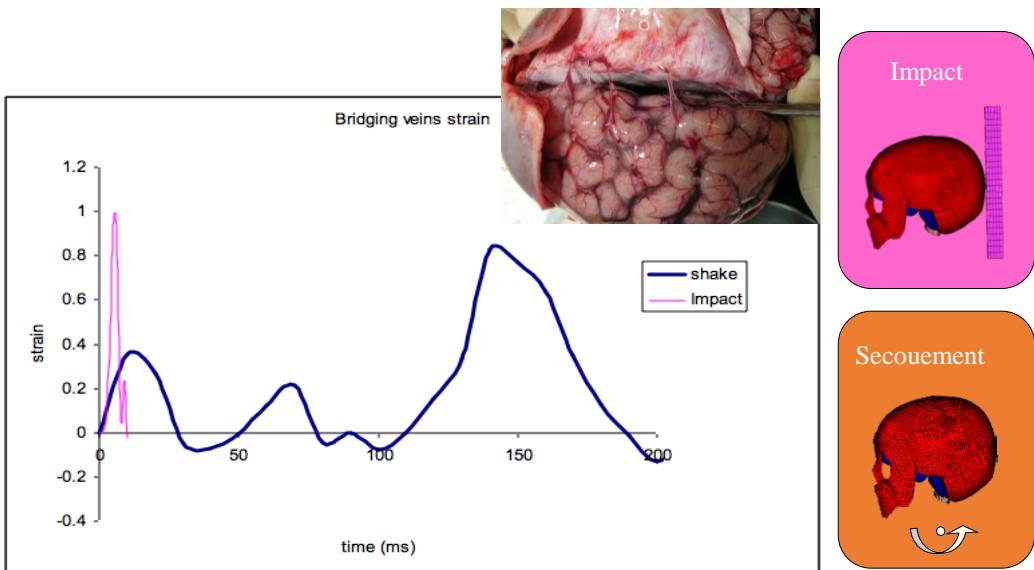
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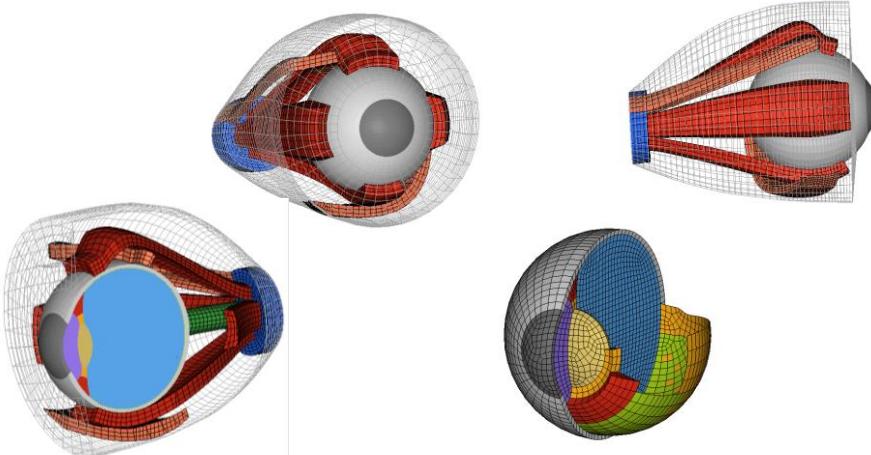
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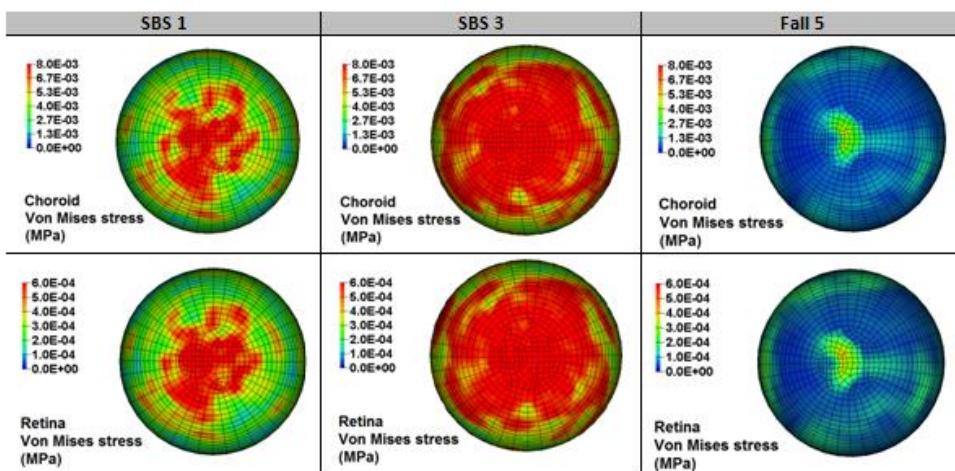
Elongation mesurée = 190 à 200% - **rupture = 150%** (Morison, Delve, Meaney)

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## Modélisation des hémorragies rétiniennes



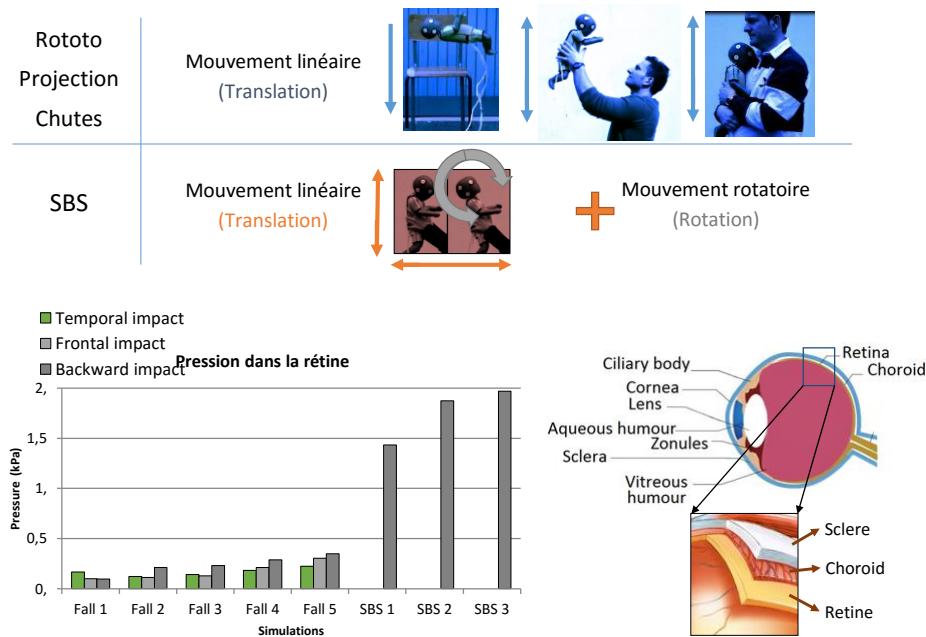
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Von Mises stress pour les secousses (SBS 1, SBS 3) et les chutes (Fall 5)

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### Niveau de chargement : Situations et accidents domestiques VS bébé secoué



### Niveau de chargement : Manèges et Grand 8 VS bébé secoué

	Author	Subjects	Test	Injury	Ang. Acc rad/s <sup>2</sup>	Ang. Vel rad/s	Lin. Acc G
Injury	Margulies Ommaya, 1967 Lowehilm, 1975 Zhang, 2004 Ommaya, 1971	Primates Primates Human Surrogates Human Volunteers Primates	Rot. Injury Rot. Injury Bridging veins Football Tackle Whiplash	DAI 99% concussion Concussion	9000 7500 4500 ← 7354 1800	70 50 103 45	
No injury	Pincemaille, 1989 Zhang, 2004 Naunheim, 2003 Ewing, 1975 Naunheim, 2000 Naunheim, 2000 Allen, 1994	Volunteers Volunteers Volunteers Volunteers Volunteers Volunteers Volunteers	Boxers Football tackle Soccer Heading Whiplash Soccer heading Hockey Check Plop in a chair	None None None None None None None	6155 4204 ← 1457 ← 1223 ← 54.7 35 10	30 55 11 25 54.7 35 10	54 55 20 20 54.7 35 10
This study		Volunteers	Roller Coaster	None	2054 ←	15.2	10.5
Our experiments	Q0 dummy		Shaking	-	1951-4961	27-48	9.5-12