1eras Jornadas Nacionales de Desarrollo
Mesa Redonda:
Abordaje Integral de Condiciones Perinatológicas Complejas

Detección Temprana de Trastornos del Neurodesarrollo: Movimientos Generales Espontáneos

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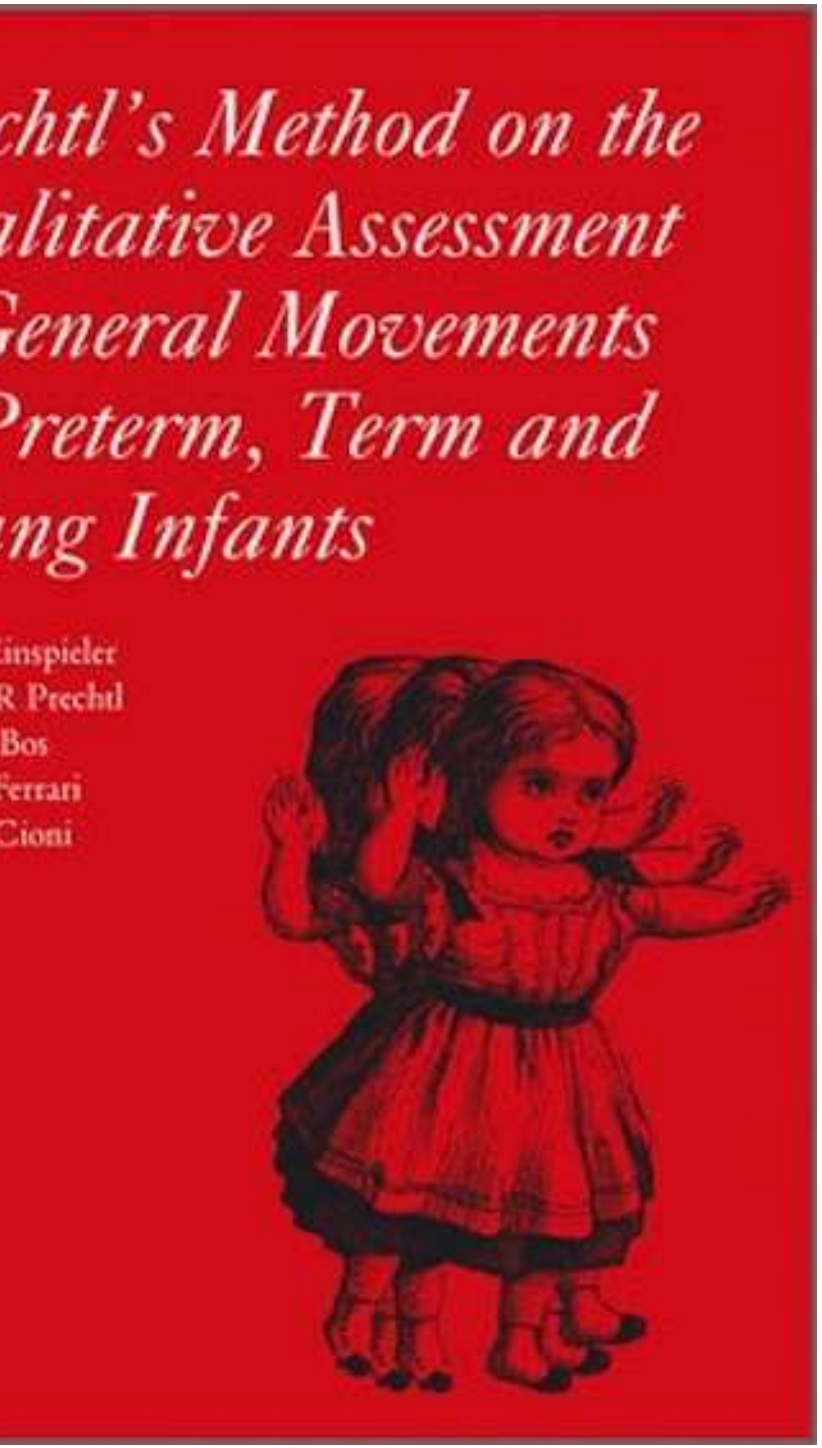
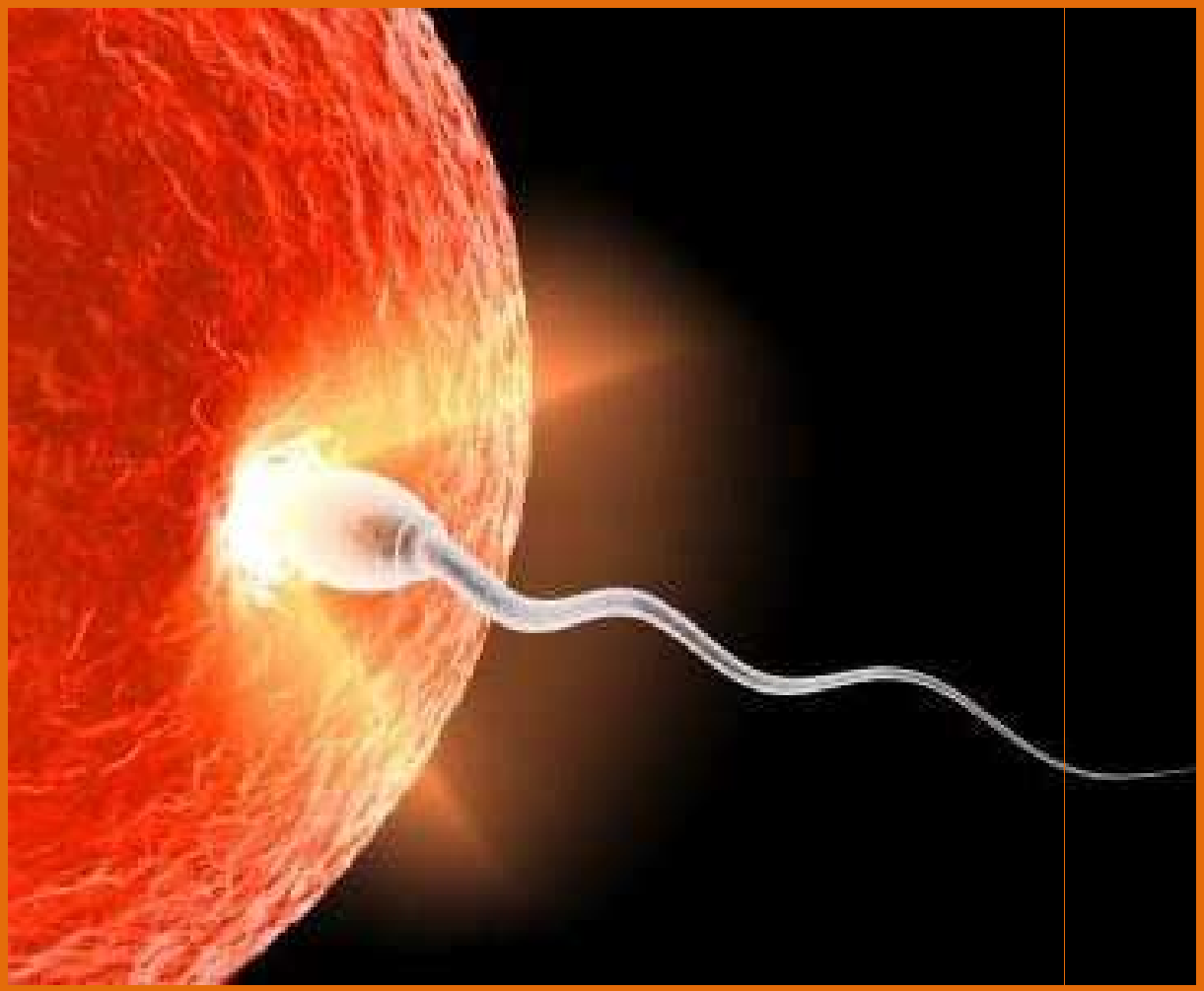


Evaluación cualitativa de los Movimientos Generales de Prechtl

Al comienzo… Movimiento



Patrones de Movimientos Fetales

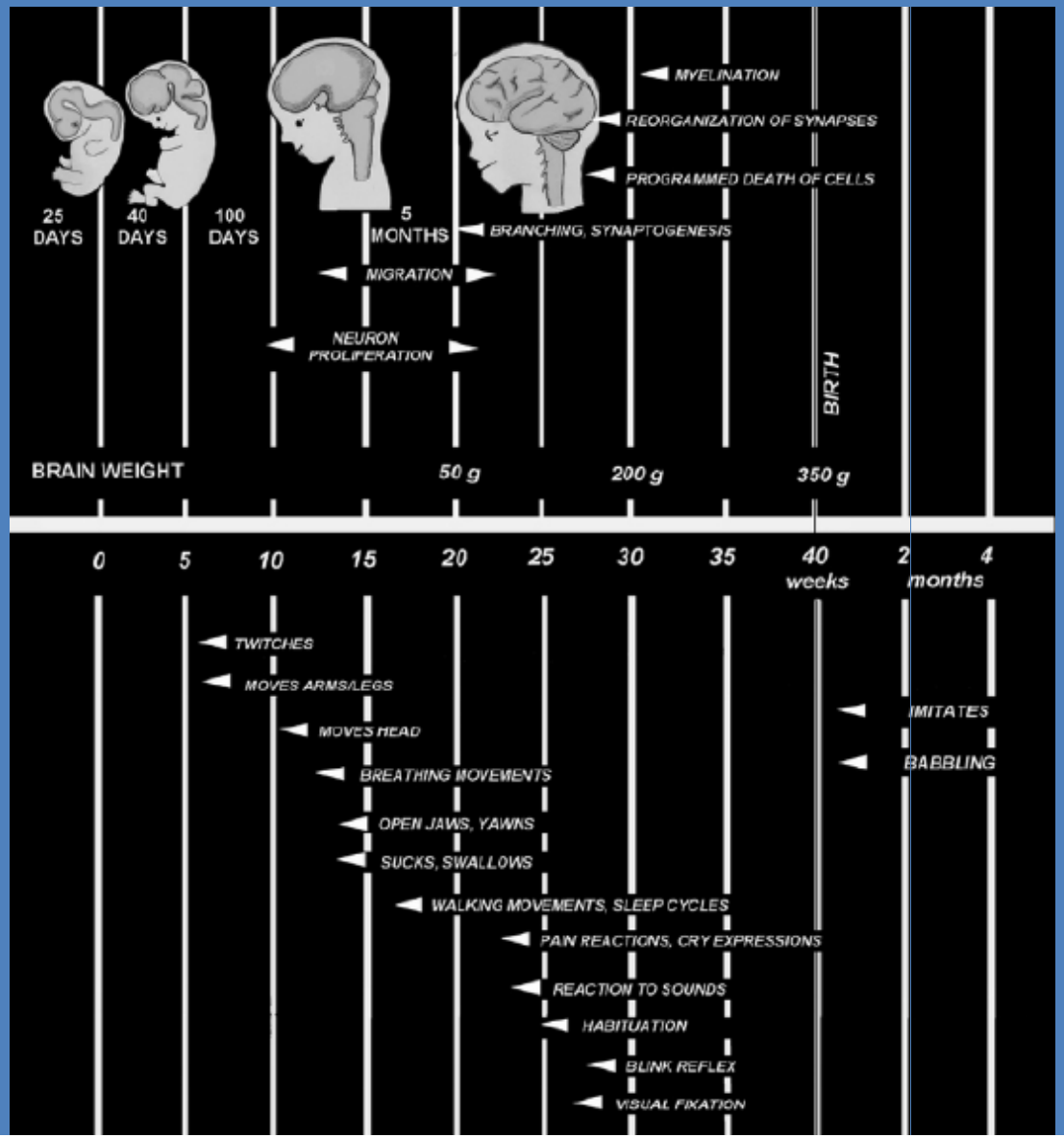
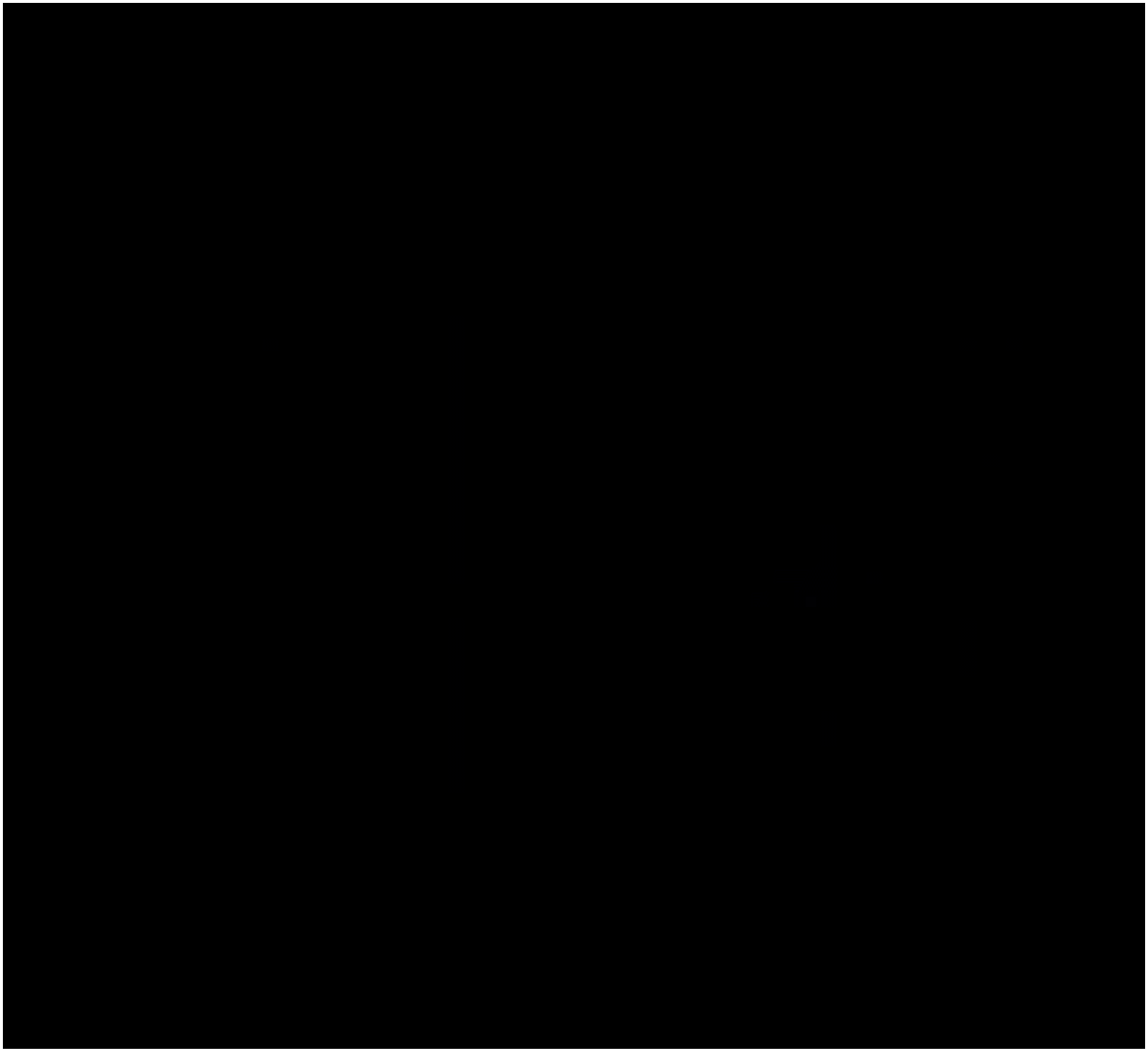
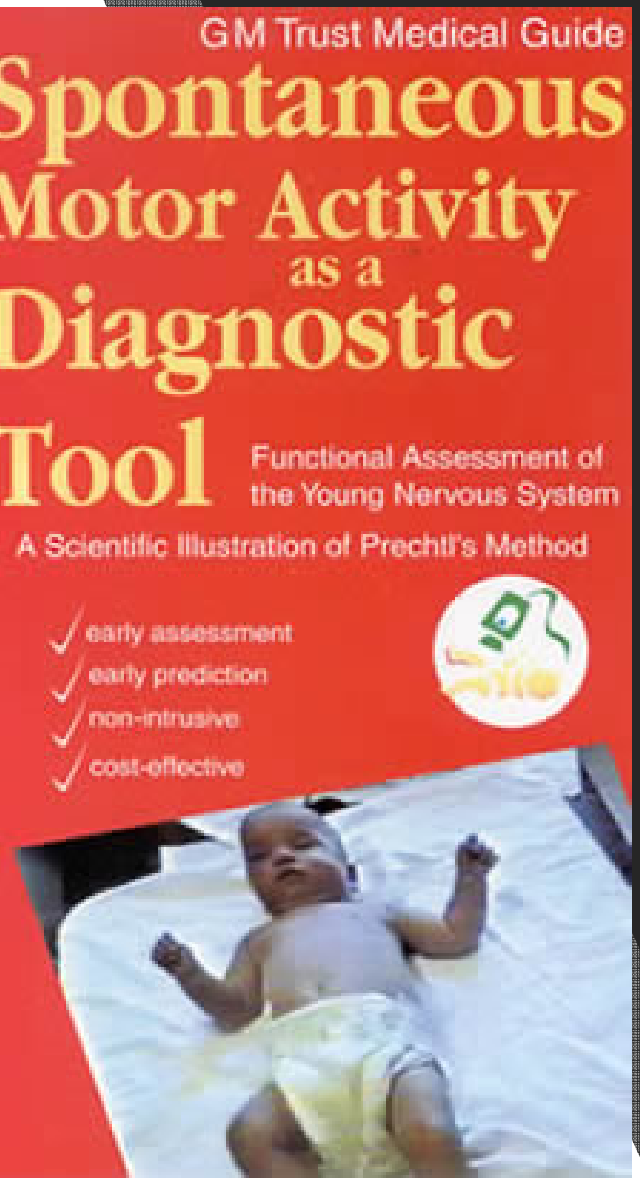


Tabla 1. Aparición de los movimientos fetales en el primer trimestre de la gestación

Tipo de movimientos	Semana de gestación
Cardiacos	5,5-6,5
Movimientos incipientes	7,5-8,5
Sobresaltos	8-9,5
Movimientos globales	8,5-9,5
Hipo	8,5-10,5
Aislados de brazos y piernas	9,5-10,5
Contacto mano-cara	10
Rotación	10-11
Estiramientos	10,5-15,5
Pulmonares	10,5-11,5
Apertura de la boca	10,5-12,5
Bostezos	11,5-15,5
Chupeteo y deglución	12,5-14,5
Manos y dedos: chupar pulgar	16
Oculares lentos	16
Bilaterales coordinados	20
Oculares rápidos	23

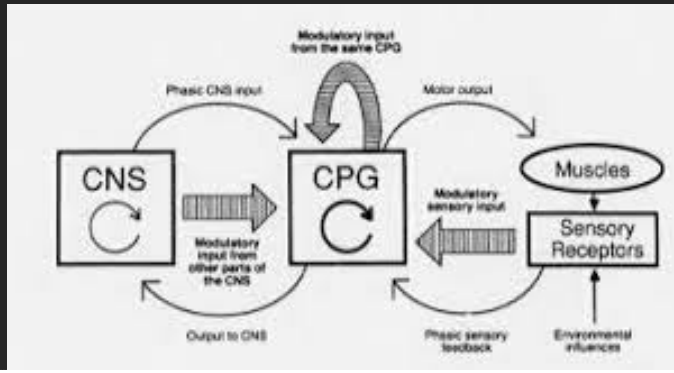
video





GMs

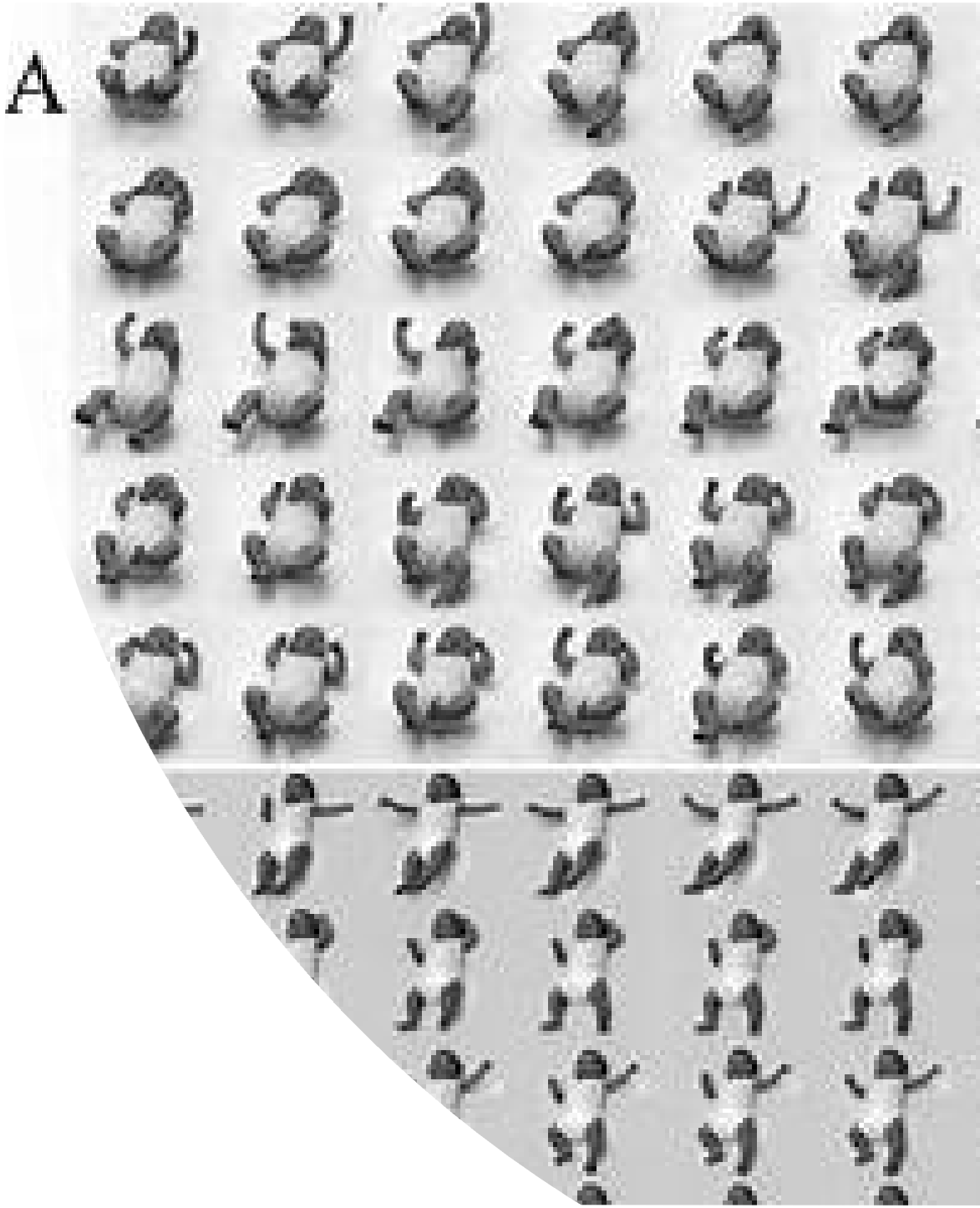
- Movimientos que abarcan todo el cuerpo en una secuencia variable de brazos, piernas, cuello y tronco.
- Se modifican en intensidad, fuerza y velocidad y empiezan y terminan gradualmente
- Desde la 9na semana
- Complejos, variables, elegantes, fluidos y diferenciados
- Independientes del estímulo y medio
- Producidos por GCP (generadores centrales de patrón)

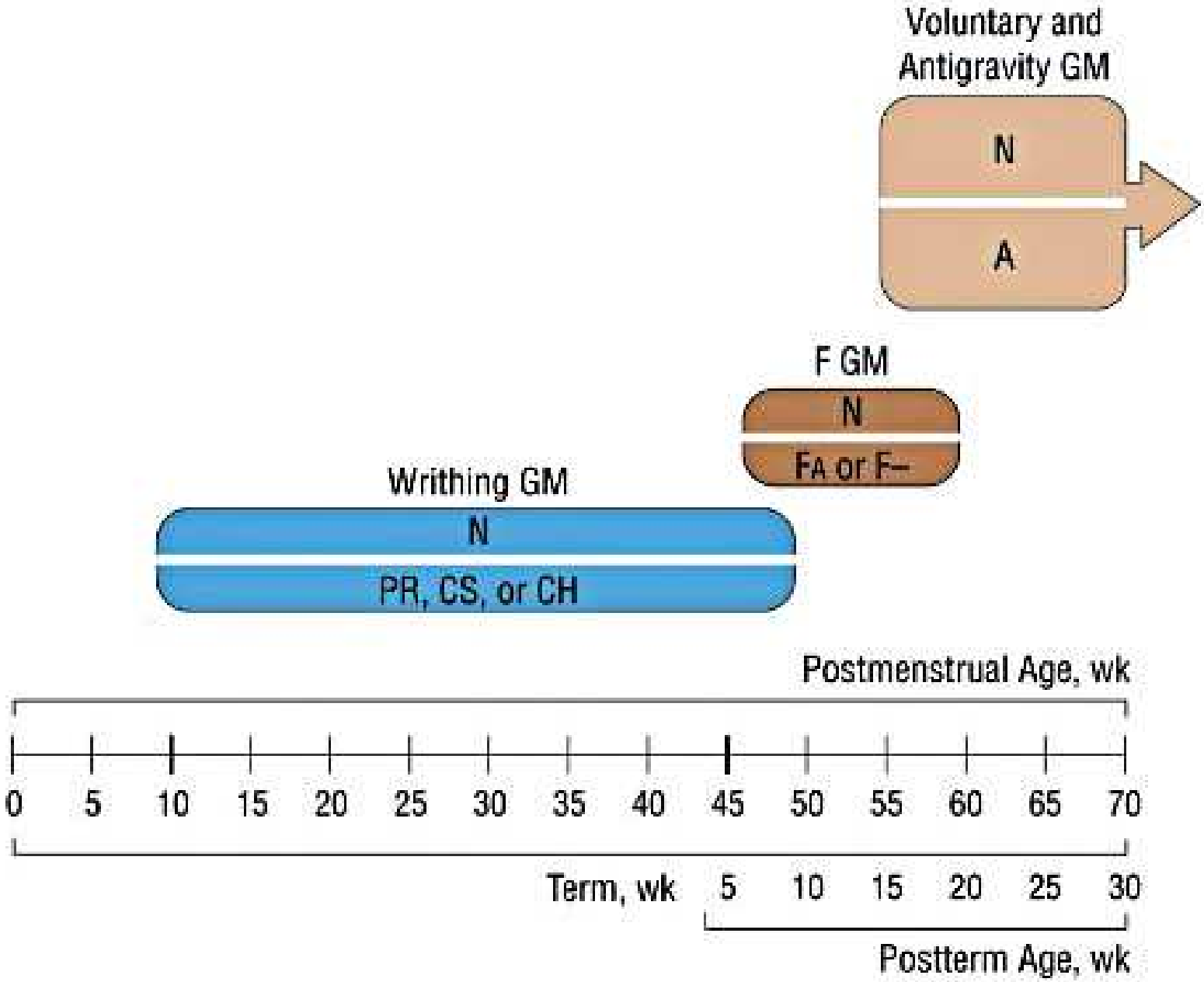


Gms Normales

4 Características:

- Fluidez
- Elegancia
- Complejidad
- Variabilidad: velocidad, fuerza, amplitud, sector en el espacio (3D), secuencia



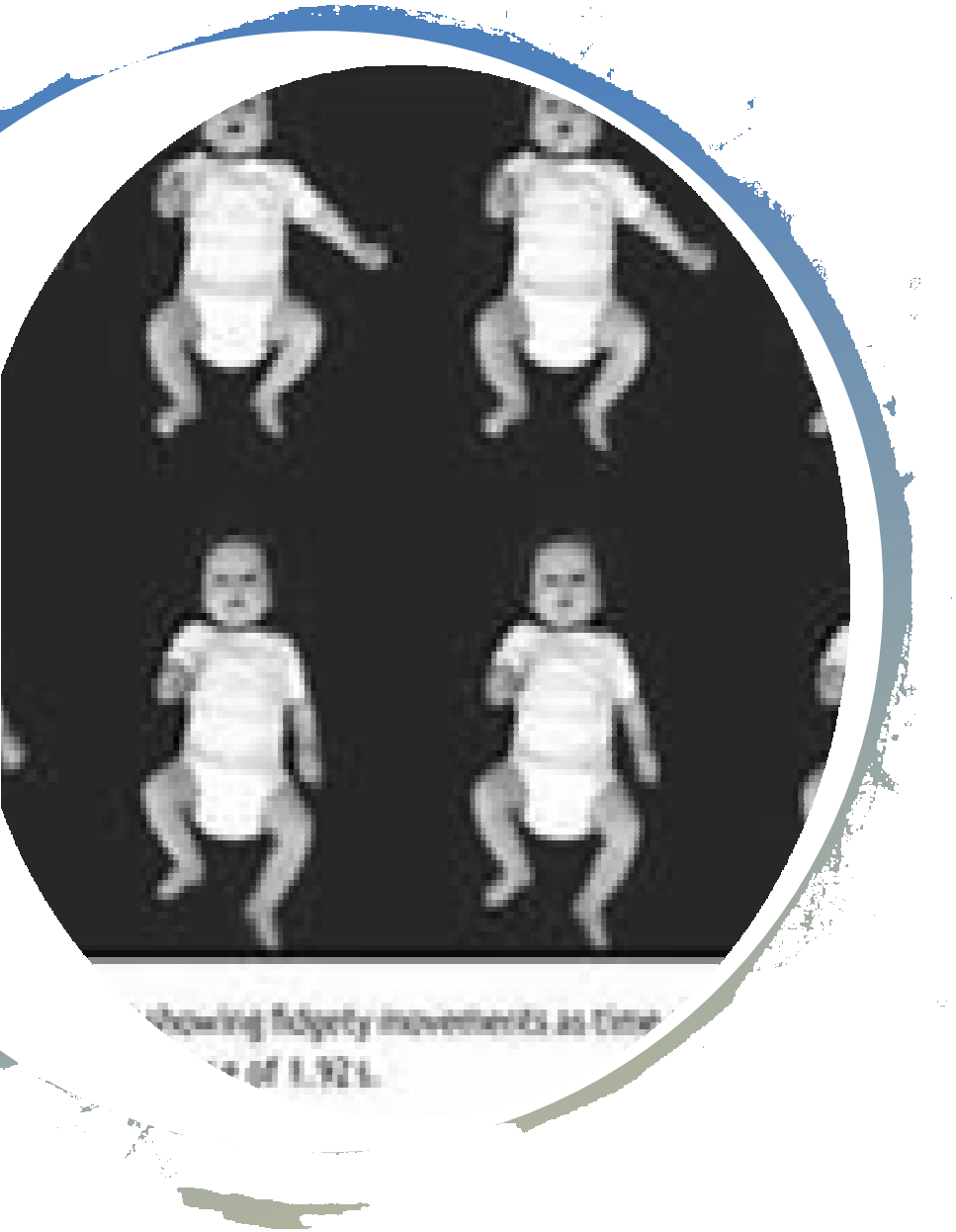

Voluntary and
Antigravity GM
N
A
F GM
N
FA or F–
Writhing GM
N
PR, CS, or CH
Postmenstrual Age, wk
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70
Term, wk 5 10 15 20 25 30
Postterm Age, wk

Gms Pretérmino

- Se parecen a los del feto: gran amplitud, velocidad, 3D
- Secuencia variable de movimientos complejos
- Empiezan y terminan gradualmente
- Rotación, fluidez y elegancia

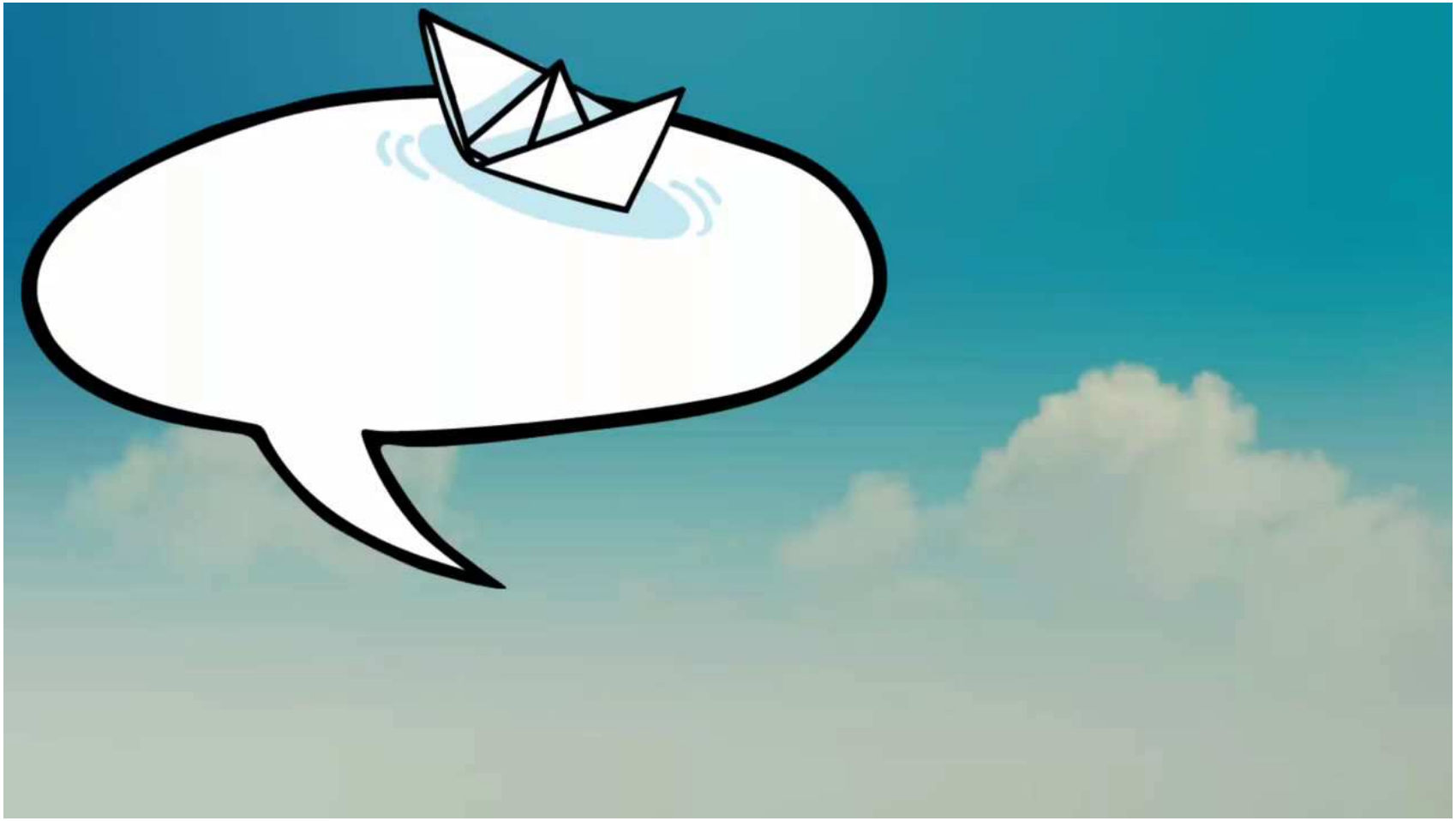
Gms término Writhing

- Amplitud y velocidad reducida
- Retorcimiento
- Elípticos
- 2 mes



Gms término Fidgety

- Pequeños movimientos
- Amplitud reducida
- Velocidad moderada
- Aceleración variable en todas direcciones
- En todas partes del cuerpo
- 6 sem-9 sem hasta 20 sem



Gms Anormales : Poor Repertoire

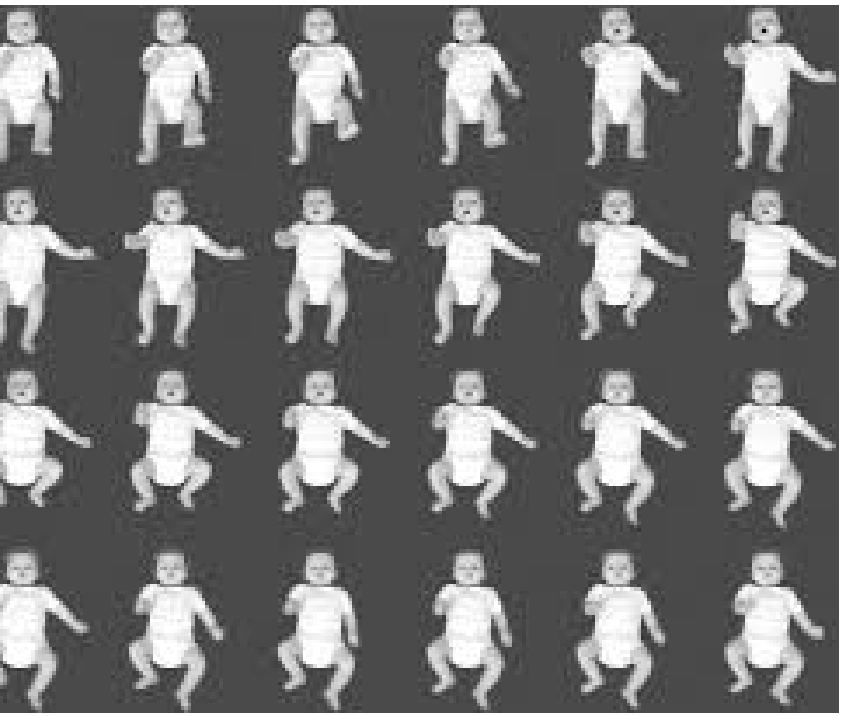
- La secuencia de movimiento es monótona y repetitiva
- Falta de complejidad y variabilidad
- 1 plano
- No específicos (Pc, ECM, Sme down, Rett, normal)
- Valor predictivo bajo
- Cuanto más precoz la normalización mejor el pronóstico
- Puede permanecer la fluidez
- Puede observarse en el período pretérmino,término y las primeras semanas

Gms Anormales: Cramped-Syncronized

- Patrón de excesiva sincronía y rigidez
- Movimientos rígidos, falta de fluidez
- Movimientos en bloque
- Siempre es PR
- Todos los músculos se acortan y relajan casi simultáneamente

Gms Anormales: Caóticos

- Abruptos
- De gran amplitud
- Poco frecuentes



FMs Anormales

Velocidad y amplitud exageradas y rígidos

Ausencia de FMs

- No se observan entre las 9-20 sem
- Aunque sean esporádicos
- Se pueden observar otros movimientos
- Alto valor predictivo de trastornos motores

Metodología: Gestalt

no invasivo
Rápido
bajo costo
cambio de paradigma

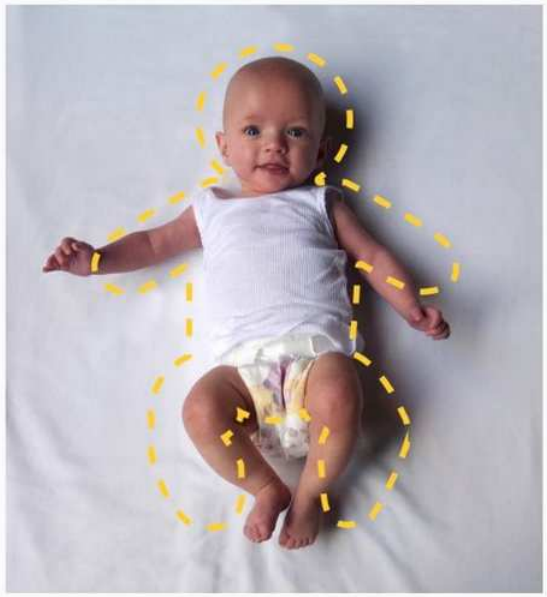
Making a 3 minute video of your baby

Your baby should be:

- Lying on his/her back
- Awake and moving
- Happy (not crying)
- Wearing singlet and nappy only

Tips:

- Take out dummy
- Take away toys
- Try not to get your baby's attention
- Keep hands and feet in view



Valor predictivo

ns Normales: Indemnidad del Sistema Nervioso

ns anormales (3 meses): Trastornos del Neurodesarrollo: Motores, gnitivos, del lenguaje y conducta.

ns PR que no se normalizan a las 8 semanas postérmino: Trastornos gnitivos.

eler C, Bos AF, Libertus ME and Marschik PB (2016) The General Movement Assessment Helps Us to Identify Preterm Infants at Risk gnitive Dysfunction. Front. Psychol. 7:406. doi: 10.3389/fpsyg.2016.00406

ns F- o anormales: Trastornos motores (combinados con imágenes SNC) S98% E91%

AN, Furrer MA, Bern-hardt I, Huppi PS, Borradori-Tolsa C, BucherHU, et al. Fidgety Movements in Infants BornVery Preterm: Predictive for CerebralPalsy in a Clinical Multicentre Setting. DevMed Child Neurol 2017; 59:618-624. PMID28102574

hik, P. B. ., F. B. Pokorny, R. Peharz, D. Zhang, J. O'Muircheartaigh, H. Roeyers, S. Bölte, et al. 2017. "A Novel Way to Measure and t Development: A Heuristic Approach to Facilitate the Early Detection of Neurodevelopmental Disorders." Current Neurology and science Reports 17 (5): 43. doi:10.1007/s11910-017-0748-8.

Trayectoria GMs

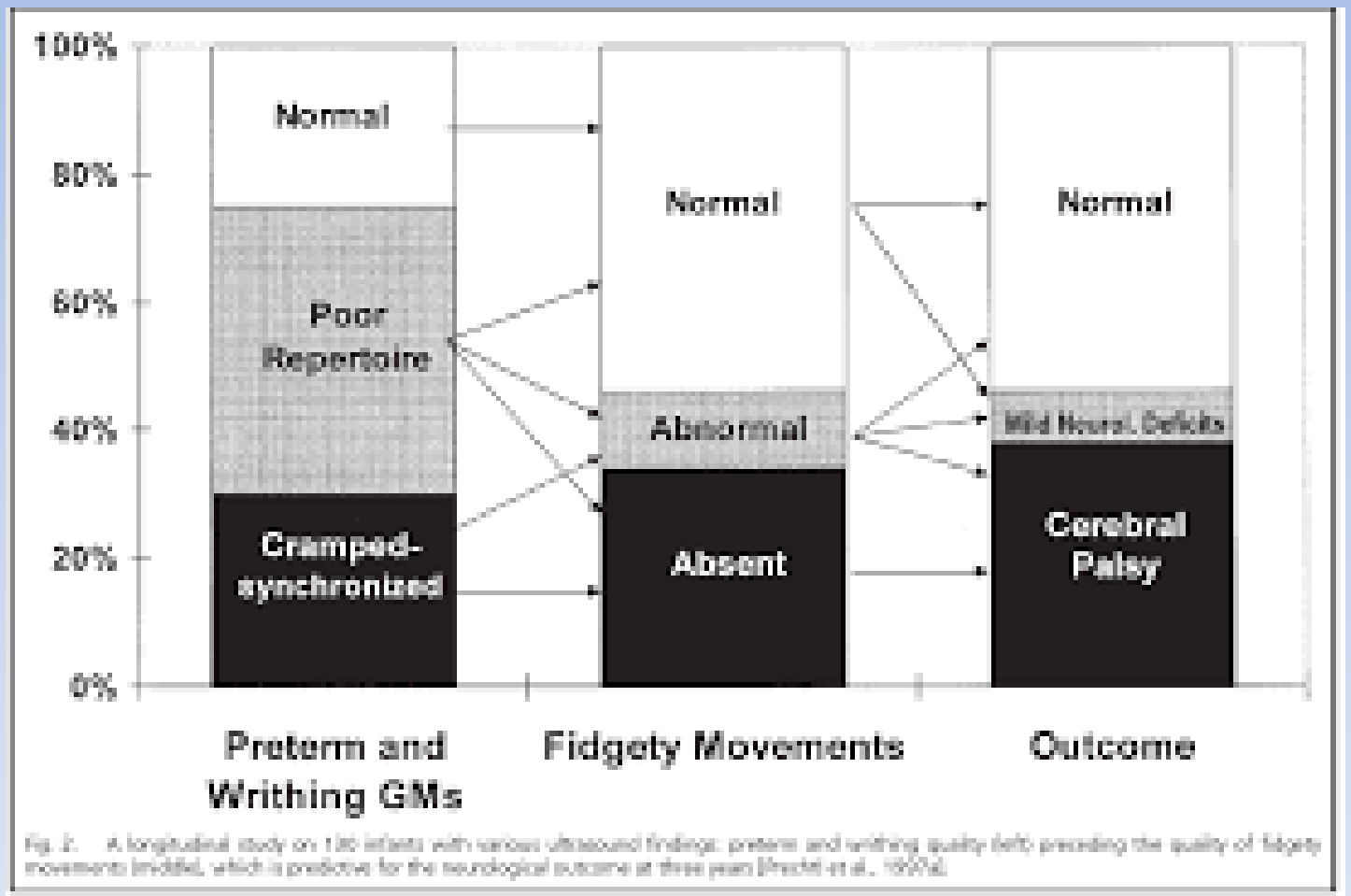


TABLE 1.

Developmental Trajectories of General Movements in NICU Graduates

GMs During Preterm Age	GMs During Term Age to 6 Weeks Post-Term Age	GMs from 9-16 Weeks Post-Term Age	Neurological Outcome
Normal or poor repertoire	Normal writing movements or poor repertoire	Normal fidgety movements	Normal[3,7,12,23]
Poor repertoire or cramped synchronized	Poor repertoire or cramped synchronized	Absent fidgety movements	Bilateral spastic cerebral palsy[3,7,10,30]
Poor repertoire	Poor repertoire or cramped synchronized	Absent fidgety movements and asymmetrical segmental movements and individual digit movements	Unilateral spastic cerebral palsy[3,7,12]
Poor repertoire	Poor repertoire	Absent fidgety movements, absence of foot-to-foot contact; circular arm movements, finger spreading	Dyskinetic cerebral palsy[3,7]
Poor repertoire	Poor repertoire	Can have normal, abnormal, or absent fidgety movements	Various genetic disorders[3,13-18]
Poor repertoire	Poor repertoire	Abnormal fidgety movements or normal fidgety movements with monotonous character	Autism spectrum disorders[18,19]
Poor repertoire	Poor repertoire	Normal or sporadic fidgety movements with monotonous, jerky, or stiff character and/or lack of various finger postures	Cognitive dysfunctions[3,7,20-26]

Abbreviations: GMs, general movements; NICU, neonatal intensive care unit.

HOME
INVITATION
DATES
LICENCED TUTORS
PAPERS
VIDEO
MANUAL
CONTACT
INTERN

Publications on Prechtl's Method on the Qualitative Assessment of General Movements in Preterm, Term and Young Infants

215. Olsen J, Marschik P, Spittle A.
Do fidgety general movements predict cerebral palsy and cognitive outcome in clinical follow-up of very preterm infants?
Acta Paediatr 2018; 107: 361-362.

214. Tomantschger I, Herrero D, Einspieler C, Hamamura C, Voos MC, Marschik PB.
The general movement assessment in non-European low- and middle-income countries.
Rev Saude Publica 2018; 52: 6-6.

BACKGROUND: Abnormal general movements are among the most reliable markers for cerebral palsy. General movements are part of the spontaneous motor repertoire and are present from early fetal life until the end of the first half year after term. In addition to its high sensitivity (98%) and specificity (91%), the assessment of general movements is non-invasive and time- and cost-efficient. It is therefore ideal for assessing the integrity of the young nervous system, most notably in lowresource settings. Studies on the general movements assessment in low- and middle-income countries such as China, India, Iran, or South Africa are still rare but increasing. In Brazil, too, researchers have demonstrated that the evaluation of general movements adds to the functional assessment of the young nervous system. Applying general movements assessment in vulnerable populations in Brazil is therefore highly recommended.

213. Crowle C, Galea C, Walker K, Novak I, Badawi N.
Prediction of neurodevelopment at one year of age using the General Movements assessment in the neonatal surgical population.
Early Hum Dev 2018; 118: 42-47.

BACKGROUND: Recent evidence indicates neonatal surgery is associated with an increased risk of neurodevelopmental disability, including cerebral palsy (CP). Despite evidence for prediction of CP there is limited information on use of the General Movements Assessment (GMA) with this population. AIM: To investigate the utility of the GMA for prediction of neurodevelopment in an infant surgical population. STUDY DESIGN: Prospective cohort study Subjects: 278 infants following cardiac surgery (n = 149), non-cardiac surgery (n = 123) or both surgeries (n = 6). OUTCOME MEASURES: GMA at three months of age (mean 12 weeks, SD 1.6) rated by three assessors, two blinded to clinical details. Follow-up at one year of age (mean 372 days, SD 13) using Bayley Scales of Infant and Toddler Development III (BSID-III), clinical and neurological examination. RESULTS: At one year, none of the 248 (89%) infants with normal fidgety movements had a diagnosis of CP, however a large