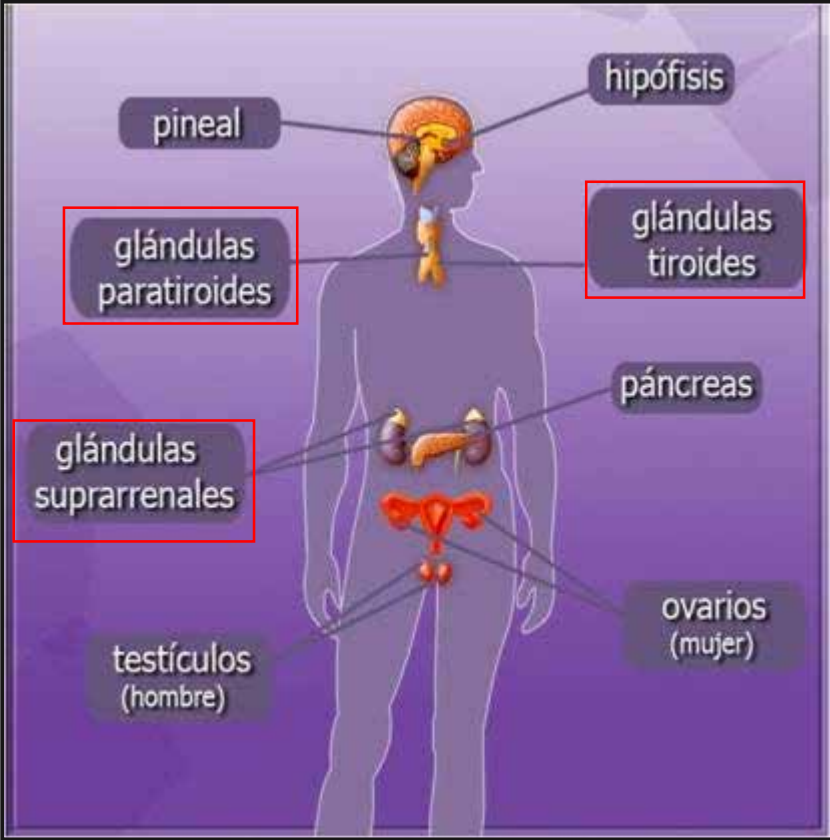


SAP: Endocrino y Obesidad



A. Parera E.Rivas A. Serrano A. Torolla L. Trillo M. Ubré



Obesidad



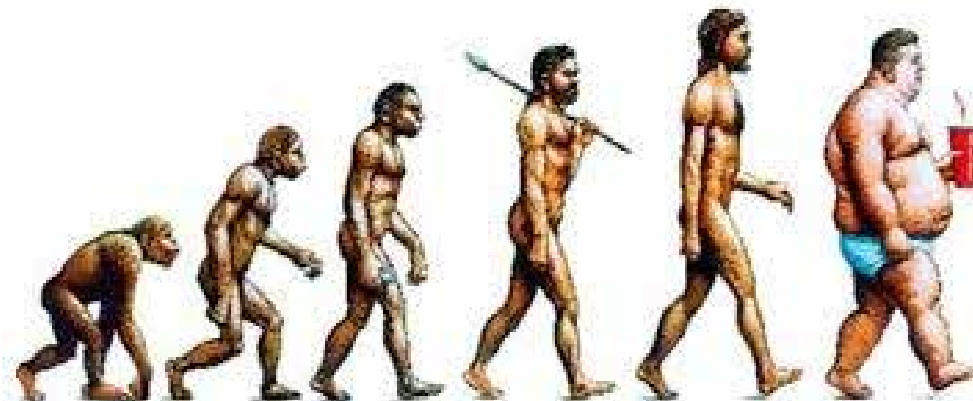
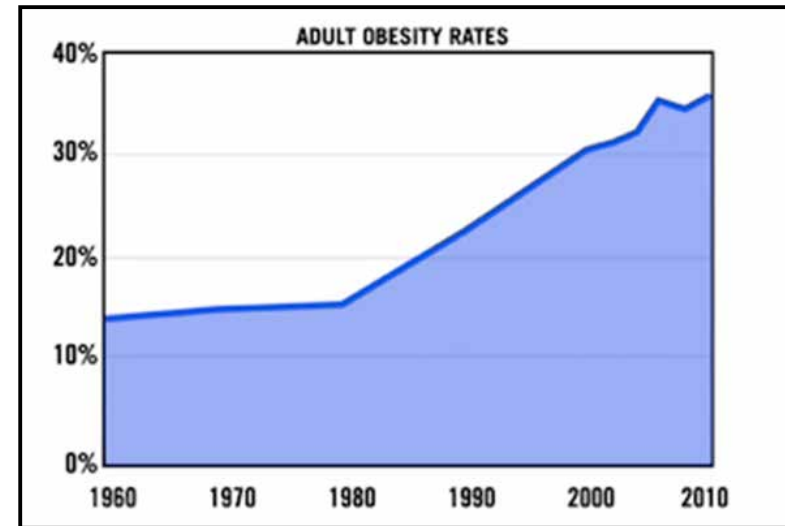
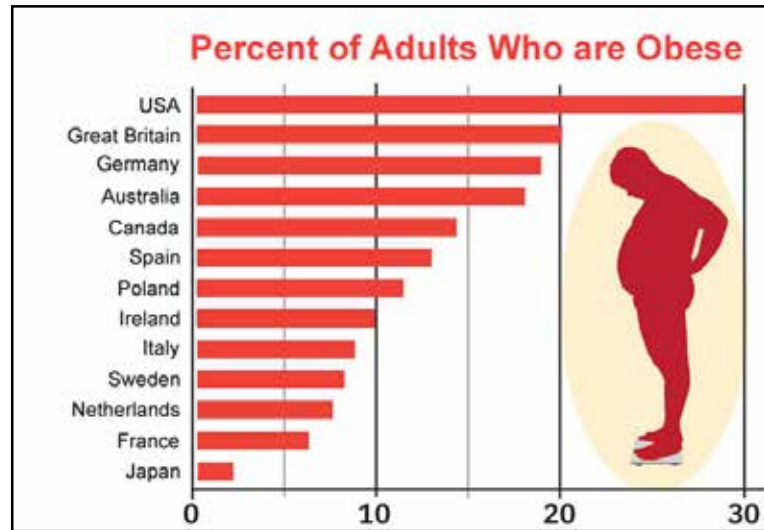
- Definición
- Valoración preoperatoria
- Intraoperatorio
- Postoperatorio



Obesidad



“Acumulación anormal o excesiva de grasa que puede ser perjudicial para la salud”



Obesity: Definition (BMI, kg/m²)

NORMAL

OVERWEIGHT

OBESITY I

OBESITY II

OBESITY III

18.5 – 24.9

25 – 29.9

30– 34.9

35– 39.9

≥ 40



BODY MASS INDEX (BMI) = WEIGHT/HEIGHT²

Obesidad: clasificación

Organización Mundial de la Salud



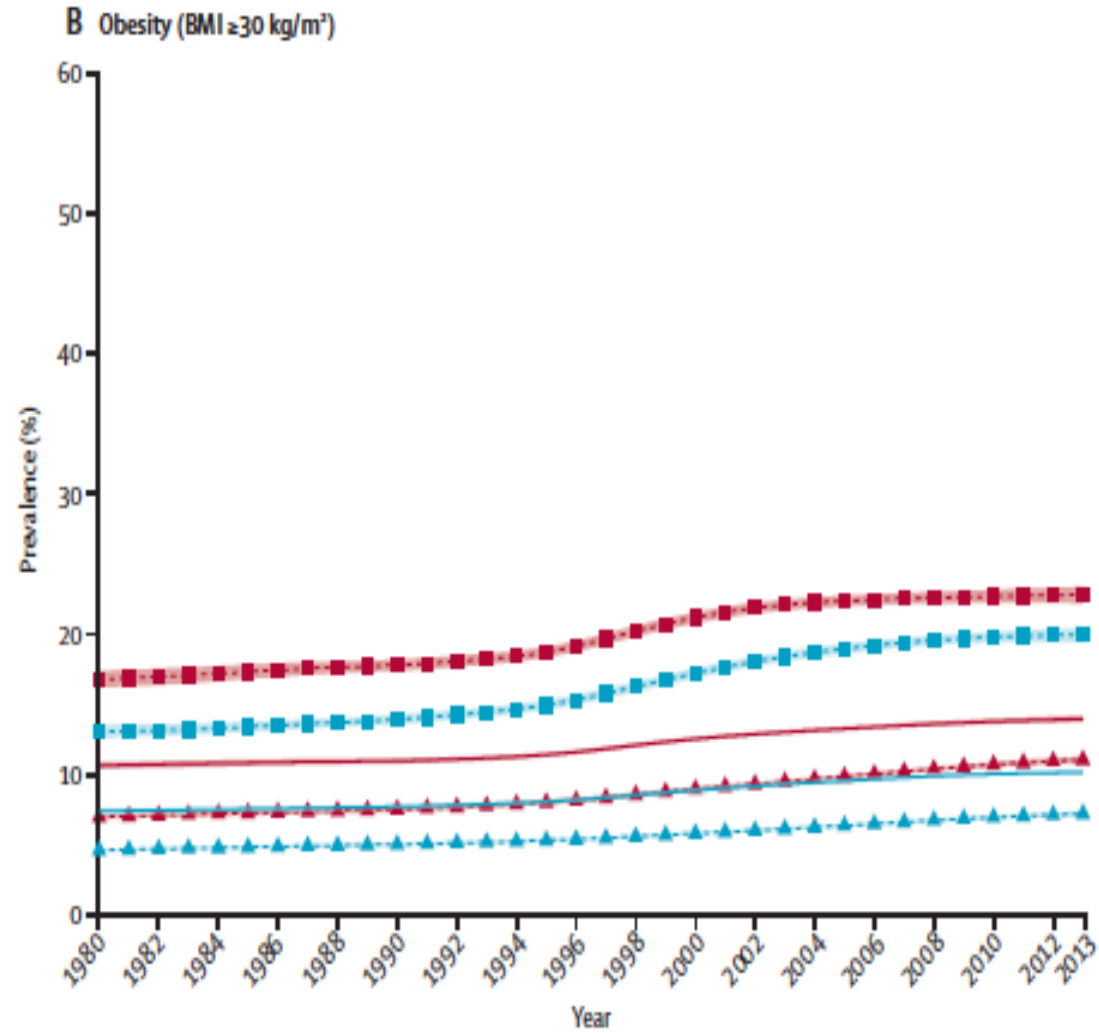
Clasificación
Peso bajo
Peso normal
Sobrepeso
Obesidad grado 1
Obesidad grado 2
Obesidad grado 3 (Mórbida)
Riesgo de Comorbilidad
Aumentado
Severo

Worldwide obesity gains 30 %

DAVE GRANLUND © www.davegranlund.com



Obesity: Prevalence

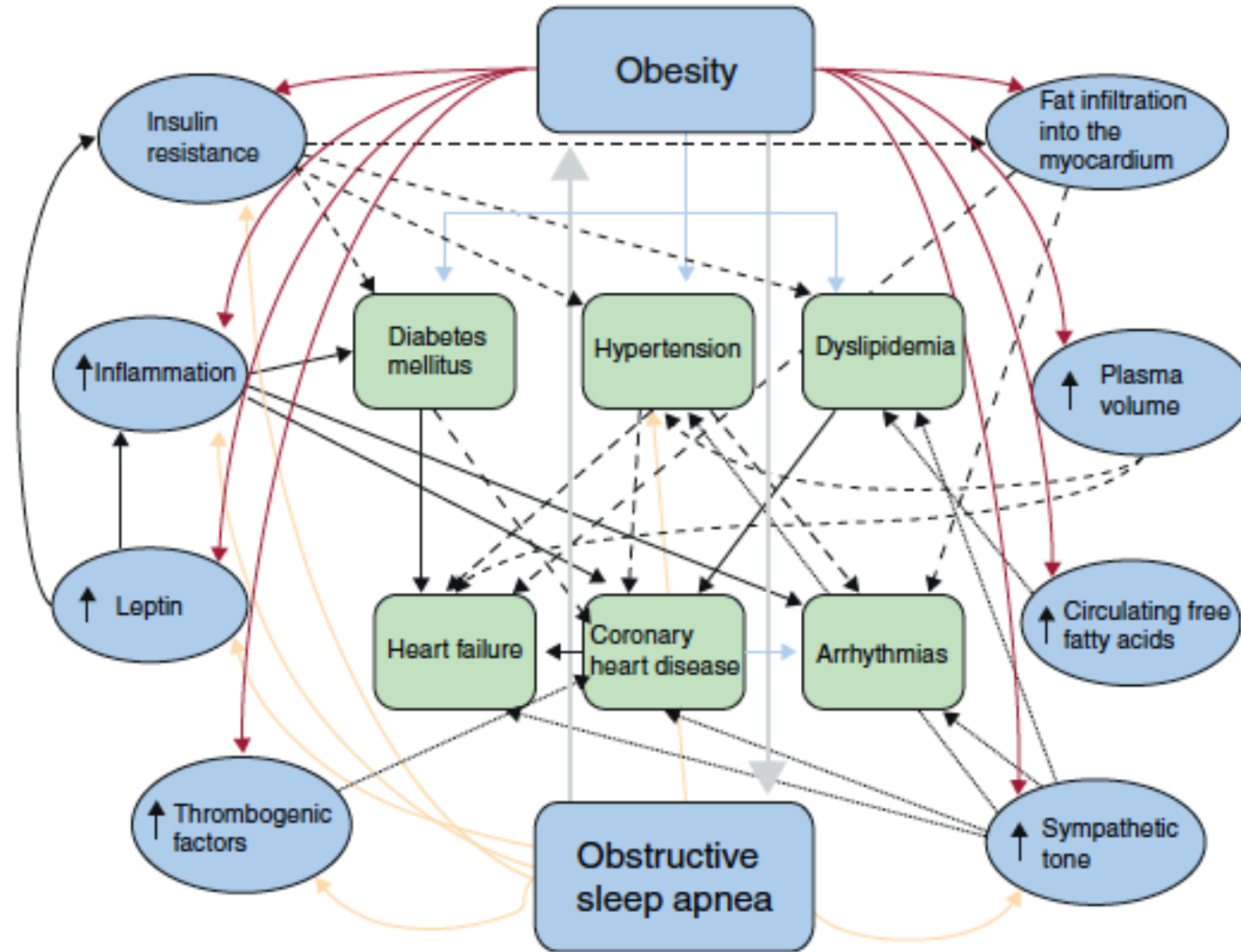


Obesity: Prevalence

	Boys <20 years		Men ≥20 years		Girls <20 years		Women ≥20 years	
	Overweight and obese	Obese	Overweight and obese	Obese	Overweight and obese	Obese	Overweight and obese	Obese
(Continued from previous page)								
Maldives	7.9 (6.5-9.5)	3.8 (3.1-4.7)	26.8 (24.6-28.9)	8.1 (7.2-9.1)	18.0 (15.0-21.3)	4.2 (3.3-5.1)	54.0 (51.7-56.3)	17.0 (15.3-18.8)
Myanmar	4.6 (3.7-5.5)	1.9 (1.5-2.4)	13.8 (12.7-15.1)	4.5 (4.0-5.0)	7.4 (6.1-8.9)	2.8 (2.2-3.5)	22.1 (20.6-23.8)	8.4 (7.6-9.2)
Philippines	5.5 (4.5-6.6)	2.6 (2.1-3.2)	22.9 (21.0-24.8)	4.1 (3.6-4.7)	5.4 (4.4-6.6)	2.1 (1.6-2.7)	25.9 (23.8-28.2)	6.2 (5.5-7.0)
Sri Lanka	5.0 (4.1-6.0)	1.9 (1.5-2.4)	19.3 (17.5-21.1)	3.3 (2.9-3.8)	8.9 (7.4-10.8)	2.2 (1.8-2.7)	32.4 (29.9-35.1)	7.0 (6.2-7.8)
Thailand	13.3 (11.4-15.9)	4.9 (4.0-6.0)	32.1 (30.1-34.2)	6.5 (5.8-7.2)	15.4 (12.7-18.2)	5.6 (4.3-6.9)	39.7 (37.1-42.4)	11.2 (10.0-12.4)
Timor-Leste	7.0 (5.8-8.3)	3.8 (3.1-4.6)	3.2 (2.9-3.6)	3.2 (2.9-3.1)	5.7 (4.6-7.0)	3.8 (3.1-4.8)	6.6 (5.9-7.2)	1.5 (1.3-1.7)
Vietnam	5.2 (4.3-6.3)	2.5 (2.0-3.1)	13.6 (12.5-15.0)	1.5 (1.3-1.7)	6.1 (5.0-7.4)	2.5 (2.0-3.2)	12.3 (11.2-13.4)	1.7 (1.4-1.9)
Southern Latin America	31.3 (28.0-34.4)	10.1 (8.6-11.7)	60.0 (58.0-61.9)	21.6 (20.0-23.1)	26.4 (23.7-29.6)	8.8 (7.6-10.2)	53.0 (50.9-55.2)	23.6 (22.1-25.3)
Argentina	29.1 (24.9-33.1)	9.4 (7.5-11.6)	56.4 (53.5-59.2)	21.2 (19.1-23.3)	23.6 (19.8-27.8)	6.8 (5.3-8.5)	48.1 (45.0-51.1)	20.4 (18.3-22.6)
Chile	37.0 (32.6-41.6)	11.9 (9.6-14.3)	67.9 (65.5-70.3)	22.0 (20.1-24.1)	31.6 (27.3-36.3)	12.4 (10.0-15.1)	63.9 (61.3-66.4)	30.3 (27.9-32.9)
Uruguay	31.2 (26.7-35.8)	9.7 (7.8-11.8)	59.6 (56.7-62.4)	23.3 (21.1-25.6)	37.7 (32.8-43.1)	18.1 (14.9-21.9)	53.1 (49.9-56.1)	25.4 (23.0-27.9)
Southern sub-Saharan Africa	14.9 (13.7-16.1)	5.6 (4.9-6.4)	34.2 (33.0-35.3)	11.7 (10.9-12.4)	23.1 (21.6-24.6)	7.4 (6.7-8.1)	63.7 (62.7-64.7)	37.0 (35.9-38.1)
Botswana	6.6 (5.5-7.9)	1.8 (1.4-2.2)	21.5 (19.7-23.5)	5.8 (5.2-6.4)	22.4 (18.8-26.4)	7.2 (5.8-8.9)	52.6 (50.0-55.1)	24.1 (22.0-26.3)
Lesotho	9.1 (7.5-11.0)	4.0 (3.2-4.9)	21.6 (19.9-23.3)	6.9 (6.2-7.6)	21.9 (18.8-25.8)	5.7 (4.6-7.0)	60.2 (57.9-62.5)	31.3 (29.7-32.8)
Namibia	6.0 (4.9-7.2)	2.6 (2.1-3.2)	21.2 (19.2-23.1)	6.0 (5.3-6.7)	8.8 (7.3-10.7)	2.3 (1.8-3.0)	42.4 (39.8-45.1)	19.8 (17.9-21.9)
South Africa	18.8 (17.0-20.6)	7.0 (6.0-8.2)	38.8 (37.4-40.3)	13.5 (12.6-14.5)	26.3 (24.3-28.5)	9.6 (8.5-10.7)	69.3 (68.1-70.4)	42.0 (40.6-43.3)
Swaziland	11.6 (9.9-13.9)	3.3 (2.7-4.1)	33.5 (31.1-35.9)	10.9 (9.8-12.2)	26.2 (22.6-30.4)	5.8 (4.7-7.2)	68.6 (66.2-71.0)	33.5 (31.0-35.9)
Zimbabwe	7.5 (6.2-9.0)	3.0 (2.4-3.7)	16.5 (15.2-17.8)	4.2 (3.7-4.7)	16.1 (13.6-18.9)	2.6 (2.0-3.2)	41.9 (39.7-44.1)	17.4 (15.8-19.2)
Tropical Latin America	22.0 (18.9-25.6)	6.8 (5.4-8.3)	52.7 (50.0-55.3)	11.9 (10.8-13.3)	24.3 (20.7-28.0)	7.5 (6.0-9.3)	58.8 (56.0-61.6)	20.9 (18.9-22.9)
Brazil	22.1 (18.8-25.8)	6.8 (5.4-8.4)	52.5 (49.6-55.2)	11.7 (10.4-13.0)	24.3 (20.6-28.1)	7.6 (6.1-9.4)	58.4 (55.6-61.3)	20.6 (18.6-22.8)
Paraguay	21.3 (18.1-24.5)	6.8 (5.4-8.3)	62.9 (60.0-65.7)	21.2 (19.2-23.3)	24.3 (20.6-28.5)	6.3 (4.9-7.9)	73.0 (70.6-75.3)	30.5 (28.2-33.2)
Western Europe	24.2 (23.1-25.2)	7.2 (6.7-7.6)	61.3 (60.5-62.2)	20.5 (19.9-21.1)	22.0 (21.0-23.0)	6.4 (6.0-6.8)	47.6 (46.8-48.4)	21.0 (20.4-21.7)
Andorra	15.9 (13.3-19.0)	9.3 (7.5-11.4)	34.4 (32.0-37.1)	10.6 (9.6-11.9)	18.4 (14.9-21.8)	9.5 (7.3-12.0)	36.1 (33.5-38.7)	7.2 (6.3-8.1)
Austria	18.9 (15.9-22.1)	10.3 (8.4-12.5)	59.7 (57.0-62.3)	18.4 (16.6-20.3)	16.3 (13.5-19.4)	7.8 (6.3-9.7)	42.8 (40.1-45.4)	17.4 (15.6-19.4)
Belgium	20.5 (17.7-23.6)	4.6 (3.7-5.5)	58.0 (55.2-60.8)	20.1 (18.0-22.1)	18.8 (16.0-21.8)	4.2 (3.3-5.1)	47.1 (44.3-49.9)	21.7 (19.5-24.1)
Cyprus	25.7 (21.9-29.6)	8.0 (6.5-9.9)	67.8 (65.0-70.6)	24.0 (21.8-26.5)	22.5 (18.9-26.2)	7.4 (5.9-9.2)	52.1 (49.1-55.1)	24.1 (21.7-26.6)
Denmark	19.7 (16.8-23.1)	8.7 (7.1-10.7)	59.2 (56.5-61.9)	19.6 (17.7-21.9)	19.4 (15.8-23.2)	5.9 (4.7-7.5)	44.7 (41.7-47.7)	19.9 (17.7-22.0)
Finland	26.0 (22.3-29.8)	9.2 (7.5-11.2)	62.2 (59.5-64.9)	20.9 (18.9-23.2)	21.1 (17.7-25.0)	6.6 (5.2-8.1)	50.4 (47.5-53.2)	22.3 (20.3-24.6)
France	19.9 (16.8-23.3)	5.8 (4.7-7.0)	55.9 (53.2-58.7)	19.3 (17.4-21.4)	16.0 (13.3-18.7)	4.7 (3.8-5.9)	42.8 (40.0-45.7)	19.7 (17.7-21.7)
Germany	20.5 (17.4-23.8)	5.5 (4.5-6.7)	64.3 (61.9-66.8)	21.9 (20.2-23.8)	19.4 (16.3-22.5)	5.3 (4.2-6.5)	49.0 (46.5-51.4)	22.5 (20.5-24.7)
Greece	33.7 (29.6-37.7)	10.5 (8.7-12.3)	71.4 (68.9-73.7)	19.1 (17.4-21.1)	29.1 (25.3-33.1)	7.9 (6.5-9.6)	51.1 (48.2-54.0)	19.4 (17.6-21.4)
Iceland	26.4 (22.7-30.2)	9.6 (7.9-11.6)	73.6 (71.3-75.8)	26.9 (24.4-29.7)	23.0 (19.7-26.6)	7.6 (6.1-9.4)	60.9 (58.0-63.8)	28.8 (26.0-31.5)
Ireland	26.6 (23.2-30.8)	6.9 (5.7-8.3)	66.4 (63.9-68.8)	22.9 (20.8-25.0)	26.5 (22.9-30.5)	7.2 (5.8-8.8)	50.9 (48.3-53.6)	22.5 (20.4-24.7)
Israel	31.0 (27.0-35.6)	13.9 (11.4-16.7)	60.4 (57.6-63.2)	21.4 (19.4-23.5)	26.6 (22.6-31.1)	11.3 (9.1-13.8)	52.7 (49.6-55.6)	24.8 (22.5-27.0)
Italy	29.9 (26.4-33.9)	8.4 (7.0-10.0)	58.3 (55.5-61.1)	18.6 (16.9-20.4)	24.3 (21.0-27.9)	6.2 (5.0-7.6)	41.4 (38.9-44.2)	17.7 (15.9-19.5)
Luxembourg	29.3 (25.3-33.4)	11.1 (9.2-13.5)	58.0 (55.1-60.8)	23.7 (21.3-26.3)	17.7 (14.5-21.1)	13.5 (10.9-16.4)	44.4 (41.6-47.2)	26.0 (23.6-28.7)
Malta	33.6 (29.3-38.0)	12.5 (10.3-14.9)	74.0 (71.6-76.4)	29.0 (26.4-31.6)	25.3 (21.6-29.3)	7.9 (6.3-9.6)	57.8 (55.0-60.6)	27.5 (24.9-30.1)
Netherlands	18.3 (15.7-21.3)	4.1 (3.4-5.0)	53.2 (51.1-55.4)	12.7 (11.6-14.0)	16.1 (13.4-18.9)	3.8 (3.0-4.7)	44.9 (42.3-47.5)	15.9 (14.4-17.4)
Norway	20.1 (17.2-23.0)	5.1 (4.1-6.3)	58.4 (55.7-61.0)	19.1 (17.1-21.4)	16.0 (13.4-18.7)	4.0 (3.1-5.0)	47.3 (44.4-50.2)	18.0 (16.1-20.0)
Portugal	28.7 (24.9-32.8)	8.9 (7.4-10.9)	63.8 (61.2-66.4)	20.9 (19.0-23.1)	27.1 (23.4-31.4)	10.6 (8.5-12.9)	54.6 (51.7-57.6)	23.4 (21.0-25.9)
Spain	27.6 (23.9-31.2)	8.4 (6.7-10.2)	62.3 (60.0-64.9)	20.7 (18.5-22.3)	23.8 (20.2-27.4)	7.6 (6.0-9.3)	46.5 (43.7-48.9)	20.9 (19.0-23.1)
Sweden	20.4 (17.5-23.4)	4.3 (3.6-5.3)	58.2 (55.6-61.0)	18.9 (17.0-21.0)	19.3 (16.5-22.5)	4.0 (3.2-5.0)	45.8 (43.2-48.5)	19.8 (17.7-21.9)
Switzerland	20.7 (17.4-24.4)	6.6 (5.4-7.9)	56.6 (53.7-59.4)	18.4 (16.5-20.1)	16.2 (13.4-19.4)	5.5 (4.3-6.8)	39.9 (37.0-42.9)	17.0 (15.3-18.8)
UK	26.1 (23.8-28.5)	7.4 (6.5-8.5)	66.6 (65.3-68.0)	24.5 (23.4-25.7)	29.2 (26.8-31.9)	8.1 (7.0-9.3)	57.2 (55.7-58.6)	25.4 (24.2-26.6)
Western sub-Saharan Africa	11.0 (9.9-12.1)	4.3 (3.8-5.0)	32.6 (31.1-34.0)	9.4 (8.8-10.1)	12.3 (11.3-13.5)	3.2 (2.8-3.6)	34.5 (33.3-35.6)	11.9 (11.3-12.5)
Benin	6.9 (5.6-8.4)	4.7 (3.8-5.8)	9.4 (8.4-10.4)	9.4 (9.0-11.4)	13.1 (10.7-15.7)	3.2 (2.5-4.1)	29.9 (27.6-32.4)	10.0 (8.9-11.2)
Burkina Faso	9.1 (7.6-10.9)	3.7 (2.9-4.5)	31.3 (28.8-33.8)	8.2 (7.3-9.2)	8.7 (7.3-10.6)	3.0 (2.4-3.8)	15.4 (14.1-16.9)	4.6 (4.1-5.2)
Cameroon	16.4 (14.1-19.0)	4.8 (3.9-5.8)	40.4 (37.8-43.1)	8.5 (7.5-9.5)	19.8 (16.8-23.1)	3.6 (2.9-4.5)	50.7 (48.4-53.0)	20.1 (18.2-22.0)
Cape Verde	11.5 (9.6-13.7)	3.3 (2.6-4.0)	31.8 (29.4-34.3)	7.0 (6.2-7.8)	18.3 (15.0-21.7)	5.2 (4.1-6.5)	44.0 (41.3-47.0)	15.4 (13.9-17.1)

(Table continues on next page)

Cardiovascular System



Valoración preoperatoria



Respiratorio

- SAHS. CPAP
- Pulsioximetría
- PFR
- Polisomnografía
- Espirometría incentivada



Cardiovascular

- Antecedentes
- Exploración física: perímetro cintura
- Clase funcional
- Exploraciones complementarias
- Dificultad accesos venosos

Endocrino

- Control glucémico
- Hb Glicosilada

Valoración v. aérea: OBESO

- Obesidad: IMC > 26
- Barba
- Edentación
- SAHS
- Edad: > 55 años

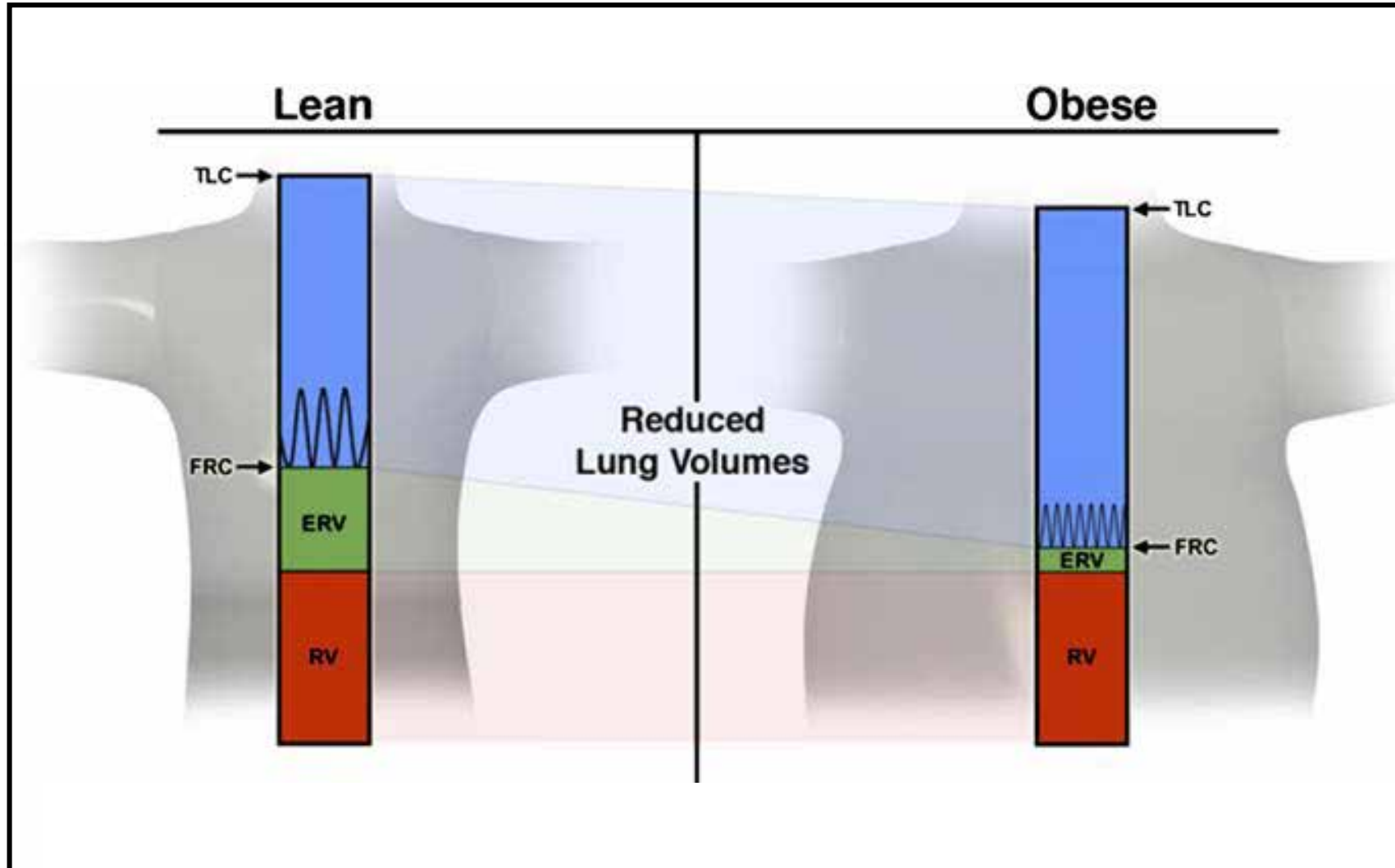
Trombopprofilaxis

- Medias compresivas
- HBPM

Mantener medicación habitual



Lung Function



Valoración preoperatoria



Respiratorio

- SAHS. CPAP
- Pulsioximetría
- PFR
- Polisomnografía
- Espirometría incentivada



Cardiovascular

- Antecedentes
- Exploración física: perímetro cintura
- Clase funcional
- Exploraciones complementarias
- Dificultad accesos venosos

Endocrino

- Control glucémico
- Hb Glicosilada

Valoración v. aérea: OBESO

- Obesidad: IMC > 26
- Barba
- Edentación
- SAHS
- Edad: > 55 años

Trombopprofilaxis

- Medias compresivas
- HBPM

Mantener medicación habitual



Intraoperatorio



Vía aérea

- O₂ Gafas nasales durante monitorización
- Dificultad ventilación con mascarilla
- Dificultad IOT (planificar estrategias)
- Posición rampa

Monitorización

- Estándar
- CAM halogenados
- Relajación muscular
- Profundidad anestésica
- Invasiva: parámetros hemodinámicos



Fármacos

- Desforane
- Propofol: peso real
- Mórficos: peso ideal
- Relajantes: TOF

Ventilación

- Presión/ volumen
- Hipercapnia permisiva (c. laparoscópica)
- PEEP



Intraoperatorio



Analgesia

- Iniciar en quirófano
- Multimodal
- Valorar A. Locorregional



Profilaxis NVPO

- Profilaxis antiemética doble
(evitar dexametasona en diabéticos)

Educación

- Reversión completa BNM
- Correcta eliminación anestésicos
- Analgesia



Postoperatorio



Analgesia

- Pacientes con SAHS: Cuidado con mórnicos
- Valorar e individualizar: A. locorregional, B. periféricos

Tromboprofilaxis

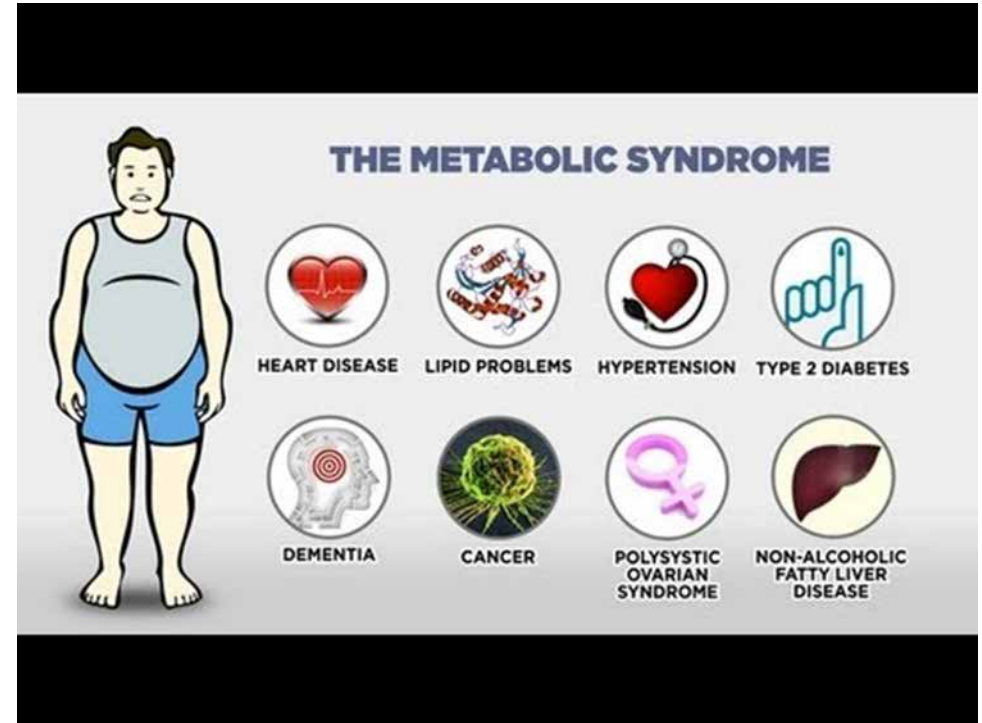
- Medias compresivas durante ingreso
- S. Compresión neumática hasta deambulación
- HBPM
- Sedestación y Deambulación precoz

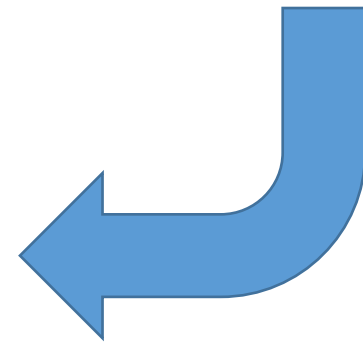
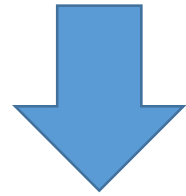
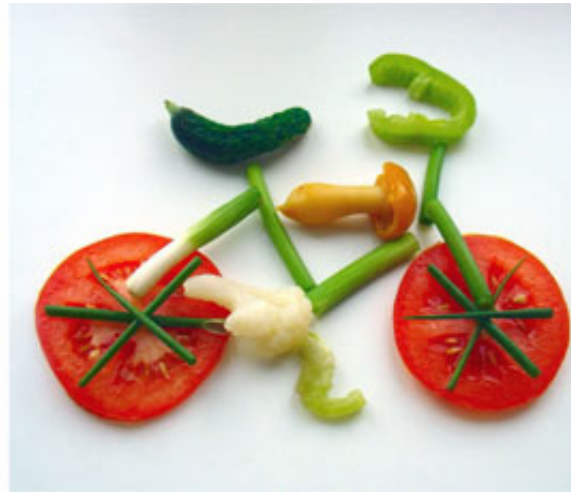
Fisioterapia respiratoria

- Espirometría incentivada
- SAHS: continuar CPAP

Destino postoperatorio

- URPA/ Críticos según tipo cirugía y comorbilidades





Profound venous thrombosis



Low Risk: During surgery
High Risk: until walking

Low molecular weight heparin
- Night before surgery
- Night after surgery - High risk 4 weeks.



Vena Cava filter

- ØSeveral DV thrombosis
- ØPulmonary thromboembolism
- ØProthrombotic states