

# Pediatric/ Adolescents and MBS.

## *The best approach*

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A partnership between:

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# Indications for MBS

## NIH consensus statement 1991

**BMI > 40 kg/m<sup>2</sup>, or**

**BMI >35 kg/m<sup>2</sup> with comorbidities**

- *Non-surgical programs should be initial therapy for severe obesity;*
- *Patients should be carefully selected for surgery after evaluation by a multidisciplinary team;*
- *Lifelong medical surveillance should continue after surgery.*

Gastrointestinal Surgery for Severe Obesity. NIH Consens Dev Conf Consens Statement 1991; 9:1-20.

## IFSO/ASMBS consensus statement 2022

**BMI >35 kg/m<sup>2</sup>**

***considered for:***

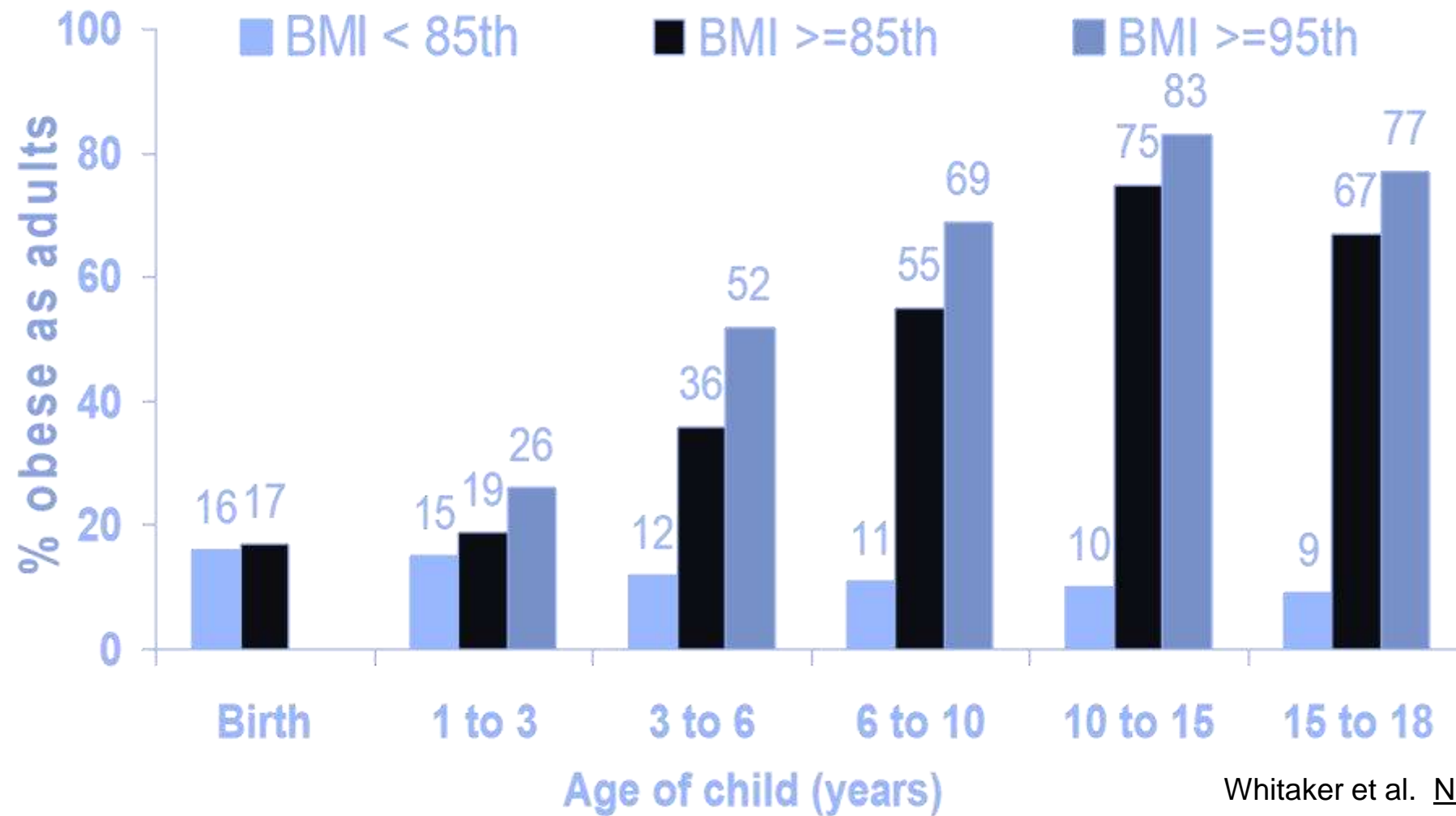
- *BMI 30-34.9 kg/m<sup>2</sup> & metabolic disease*
- *Asian individuals with BMI >27.5 kg/m<sup>2</sup>*
- *Appropriately selected children/adolescents should be considered for MBS.*

# Adolescent Bariatric Surgery

## Why?

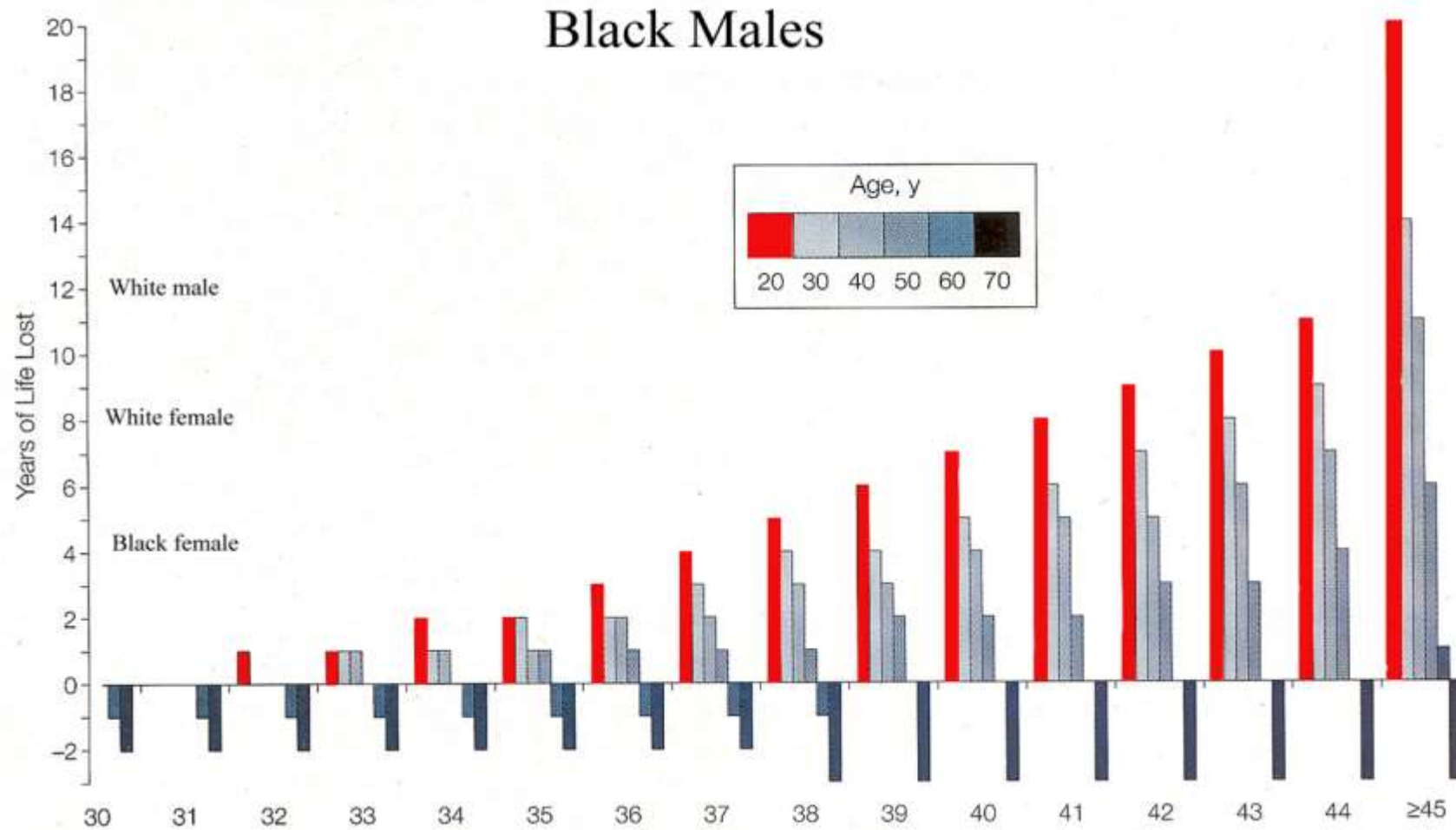
- Prevalence of obesity in children & adolescents
  - 50 million girls
  - 74 million boys
- Severe obesity
  - USA 6.1% of children 2 - 19 years of age
  - Europe 1 - 5.50% with more boys affected than girls
- Higher risk of adult obesity
- Higher risk of co-morbidities and early mortality

# Obesity continues in to adulthood



Whitaker et al. *NEJM*: 1997;337:869-873

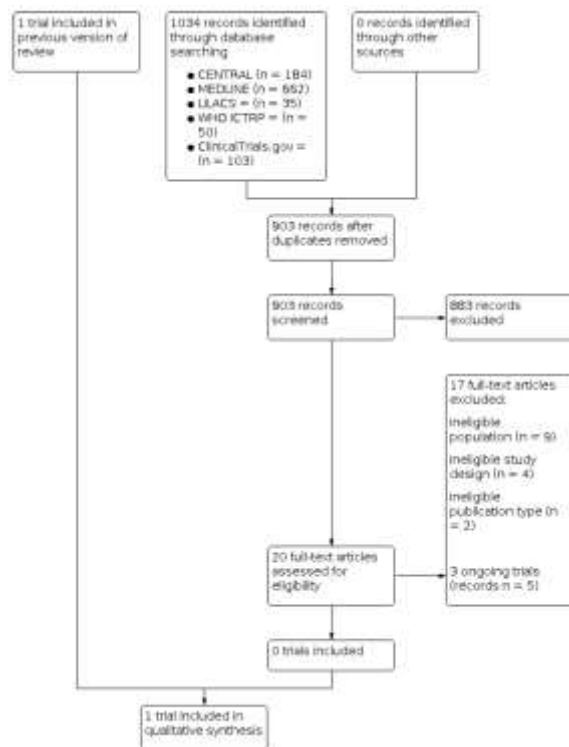
# Impact of BMI on life expectancy



Fontaine et al JAMA 289:187, 2003

# MBS and Adolescents

Cochrane Review, 2022



- Update of review of 2015
- No new RCT
  - Three RCT under way
- Only RCT was LAGB vs Lifestyle
  - Unable to make new recommendations
  - Highlights need for more RCT
  - Guidelines based on observational studies

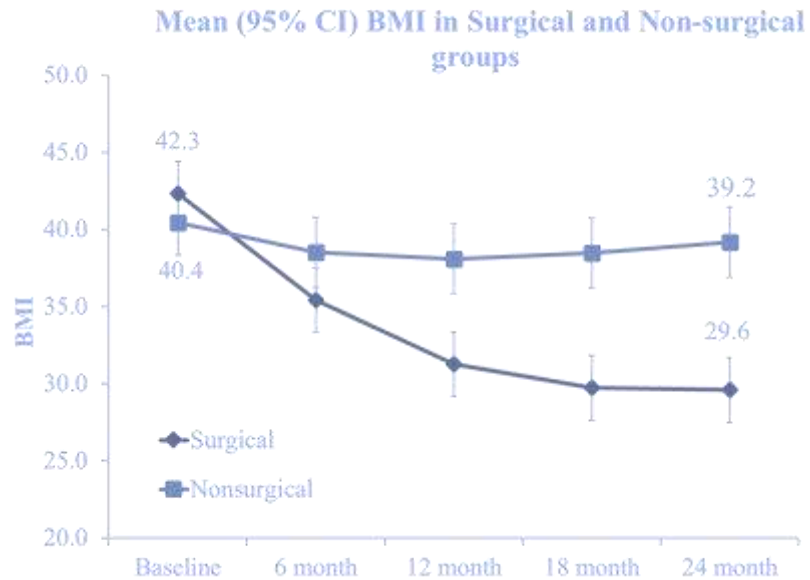
Torbahn G, et al. Surgery for the treatment of obesity in children and adolescents. Cochrane Database of Systematic Reviews 2022, Issue 9. Art. No.: CD011740.  
DOI: 10.1002/14651858.CD011740.pub2

# MBS and Adolescents

## Randomised Controlled Trial

*O'Brien et al, JAMA 2010*

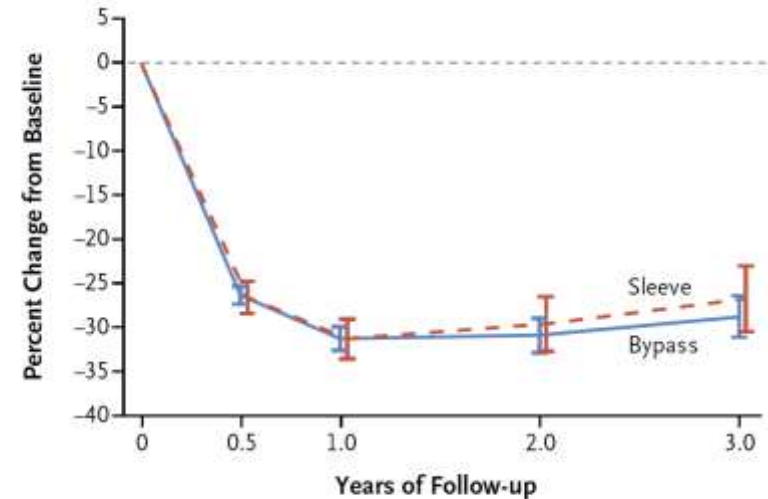
- LAGB vs Best Medical
- 50 adolescents



## Comparative Cohort Study

*Inge et al, NEJM 2016*

- 242 participants in Teen-LABS
  - 161 RYGB
  - 61 LSG
  - 20 LAGB



No. of Participants

Bypass	161	140	140	137	131
Sleeve	67	56	61	58	52

# MBS and Adolescents

## Randomised Controlled Trial

*O'Brien et al, JAMA 2012*

- LAGB led to improvement in
  - Triglycerides
  - Hypertension
  - HOMA-S
- Safety
  - No deaths
  - 14 (28%) revision of band or port

## Comparative Cohort Study

*Inge et al, NEJM 2016 & 2018*

- Comorbidities
  - 95% of T2D resolved
  - 80% HT resolved
  - Stable at 5 years. >adults
- Safety
  - 1 death RYGB
  - 44 (19.8%) repeat laparotomies
  - 29 (13%) endoscopic procedures

Recommendation Grade	Level of Evidence	Type of Study
A	1a	Systematic review of (homogeneous) RCT
A	1b	Individual RCT (with narrow CI)
B	2a	Systematic review of (homogeneous) cohort studies of "exposed" and "unexposed" subjects
B	2b	Individual cohort study / low-quality RCT
B	3a	Systematic review of (homogeneous) CC studies
B	3b	Individual CC studies
C	4	Case series, low-quality cohort or case-control studies
D	5	Expert opinions



# Risk vs Benefit

Risk of  
Harm



Possibility  
of Benefit

# Special consideration in adolescence

- Impact on pubertal development or linear growth
  - *cohort studies and case series suggest impact may not be as great as prev thought*
  - *potentially Tanner stage and bone age should not be considered a requirement for surgery*
- Ability to comply with lifestyle change – consideration of MDT
  - *syndromic obesity*
  - *developmental delay*
  - *autism spectrum*
  - *history of trauma*

Inge TH, Courcoulas AP, Helmrath MA. N Engl J Med 2019; 380:2136-45.  
Alqahtani AR, Elahmedi M, Abdurabu HY, et al. J Am Coll Surg 2021; 233:657-64.59].  
Jones RE, Wood LSY, Matheson BE, et al.. Obes Surg 2021; 31:3883-7

# MBS and adolescence

## Current Guidelines



ELSEVIER



CrossMark

Surgery for Obesity and Related Diseases 14 (2018) 882–901


SURGERY FOR OBESITY  
AND RELATED DISEASES

Review article

ASMBS pediatric metabolic and bariatric surgery guidelines, 2018

FROM THE AMERICAN ACADEMY OF PEDIATRICS | POLICY STATEMENT | DECEMBER 01 2019

## Pediatric Metabolic and Bariatric Surgery: Evidence, Barriers, and Best Practices **FREE**

Sarah C. Armstrong, MD, FAAP ; Christopher F. Bolling, MD, FAAP; Marc P. Michalsky, MD, FACS, FAAP, FASMBS; Kirk W. Reichard, MD, MBA, FAAP, FACS; SECTION ON OBESITY, SECTION ON SURGERY; Matthew Allen Haemer, MD, MPH, FAAP; Natalie Digate Muth, MD, MPH, RD, FAAP; John Conrad Rausch, MD, MPH, FAAP; Victoria Weeks Rogers, MD, FAAP; Kurt F. Heiss, MD, FAAP; Gail Ellen Besner, MD, FAAP; Cynthia D. Downard, MD, FAAP; Mary Elizabeth Fallat, MD, FAAP; Kenneth William Gow; MD FACS, FAAP

Consideration of MBS in children/adolescents with:

- BMI >120% of the 95th percentile (class II obesity) and major comorbidity, or a
- BMI >140% of the 95th percentile (class III obesity)

# Conclusion

There is emerging evidence for increasing the access to MBS even for high risk populations

- Lack of RCT and high level evidence
  - *Maybe impossible*
  - *Possible role for registries*
- Risk vs Benefit comparison needs to be considered in all cases
  - *Ability to comply with lifestyle changes*
  - *Likelihood of achieving not only weight loss but improved health*
  - *Lifelong impact of weight loss vs changing anatomy*
  - *Cost-efficacy*
- Safest operation at facility with team and facility to support teens

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YOUR...



# XXVII IFSO World Congress

3 - 6 September 2024



[www.ifso2024.org](http://www.ifso2024.org)







# Acknowledgements

## Registry Participants

### Contributing Surgeons and Hospitals



## Registry Funders

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