



SOCIETÀ ITALIANA
DI GERONTOLOGIA
E GERIATRIA



CONGRESSO NAZIONALE
SOCIETÀ ITALIANA DI GERONTOLOGIA E GERIATRIA

21-24 Novembre 2012
MiCo - Milano Convention Center

La malattia diverticolare nell'anziano

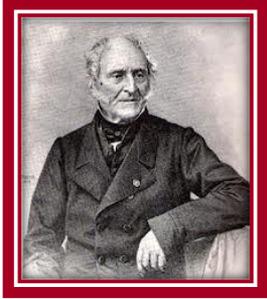
Gerardo Nardone

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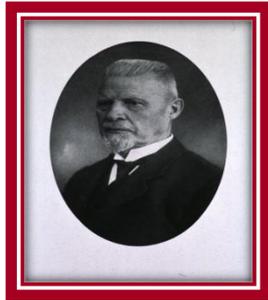
***University Federico II of Naples
Department of Clinical
and Experimental Medicine
Gastroenterology Unit***

HINT OF HISTORY



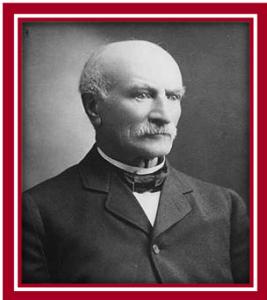
Jean Cruvellheir
1791-1874

In **1849** described “small, pear-shaped, hernial protrusions of mucosa through the muscle coat of the sigmoid colon”



Ernst Graser
1860-1929

In **1899** described the first case of diverticular inflammation, known as diverticulitis

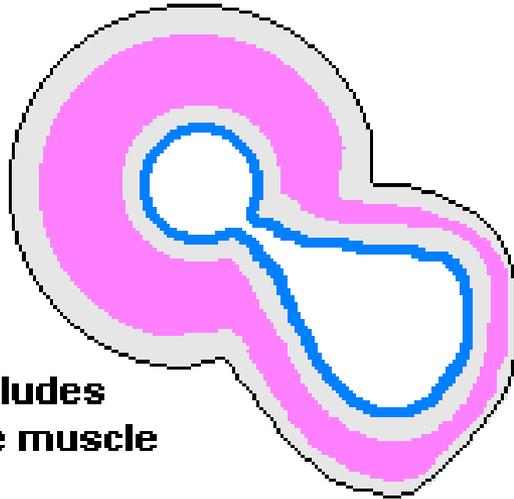


William Mayo
1819-1911

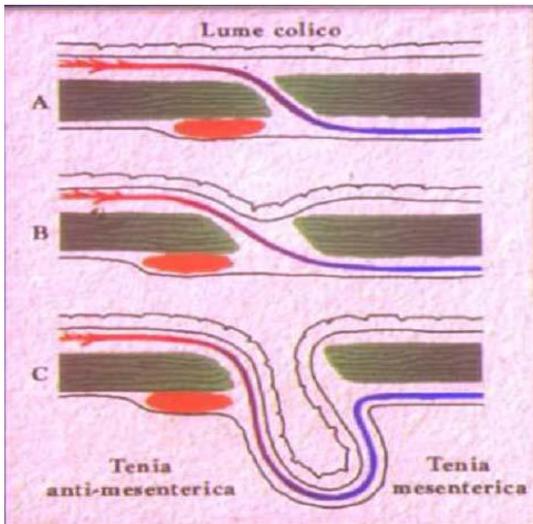
In **1907** reported surgical treatment of diverticulitis with a colostomy at St Mary’s Hospital in Rochester, MN

DEFINITION

True Diverticulum



**Includes
the muscle**



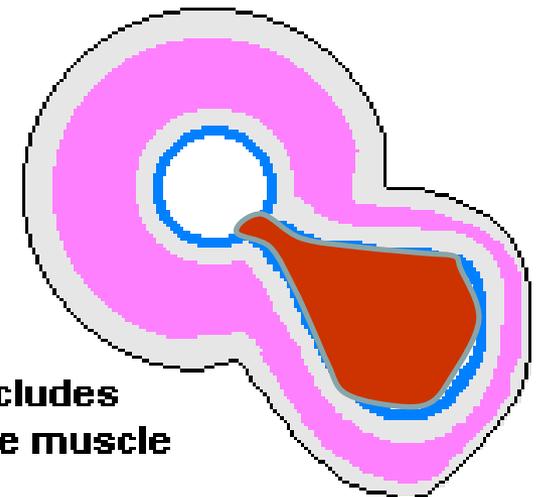
Pseudo-Diverticulum



**Through
the muscle**



Inflammed Diverticulum



**Includes
the muscle**



Burden of Gastrointestinal Disease in the United States: 2012 Update

- ✓ 6° leading cause of diagnoses for GI disorders in outpatient visits
- ✓ 3° cause of GI hospital discharge diagnosis
- ✓ 2,115,989 \$/year Health costs
- ✓ 16° cause of Death for GI disorders



Diverticular disease of the colon in Europe: epidemiology, impact on citizen health and prevention

- ✓ 27% Population with colonic diverticula
- ✓ 102,779,524 Population estimate with colonic diverticula
- ✓ 209/100,000 annual rate of hospital admission for diverticular disease
- ✓ 3% Mortality rate
- ✓ 5° causa spese sanitarie tra le malattie gastrointestinali





World Gastroenterology Organisation Practice Guidelines:

Diverticular Disease

2007

Diverticular Disease in the Elderly

Giuseppe Comparato^a Alberto Pilotto^b Angelo Franzè^c Marilisa Franceschi^{a,b}
Francesco Di Marin^a

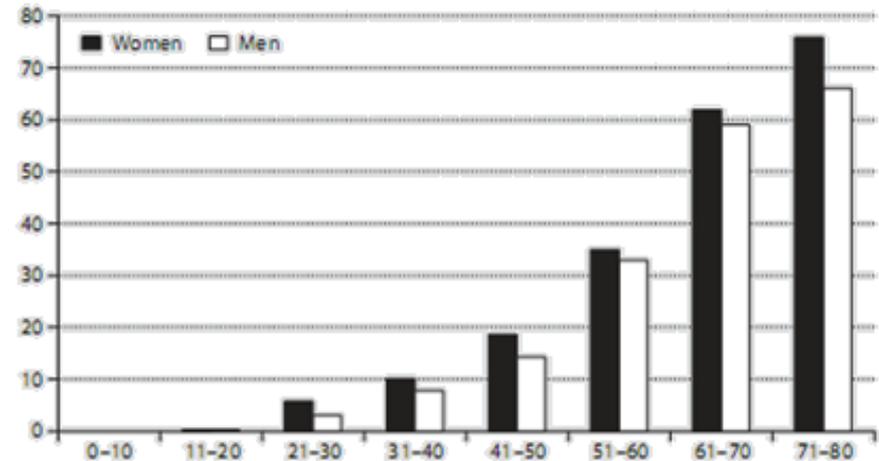
2007

Prevalence by age:

- Age 40 5%
- Age 60 30%
- Age 80 65%

Prevalence by sex:

- Age < 50 **male** prevalence
- Age 50–70 **women** prevalence
- Age > 70 **women** prevalence

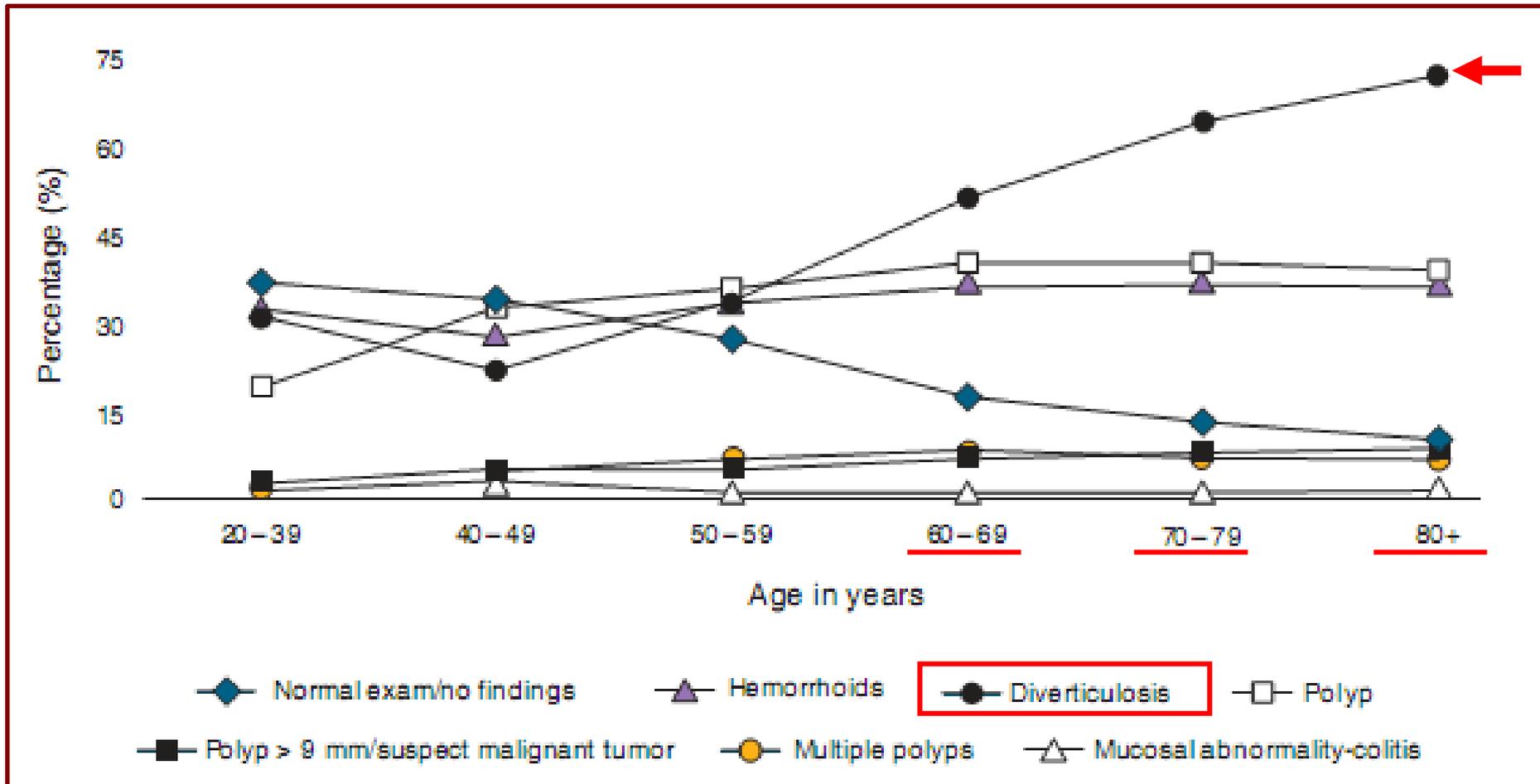


The exact prevalence is difficult depending by the test used

Autopsy-Radiography-Endoscopy

Screening in asymptomatic population is not ethically possible

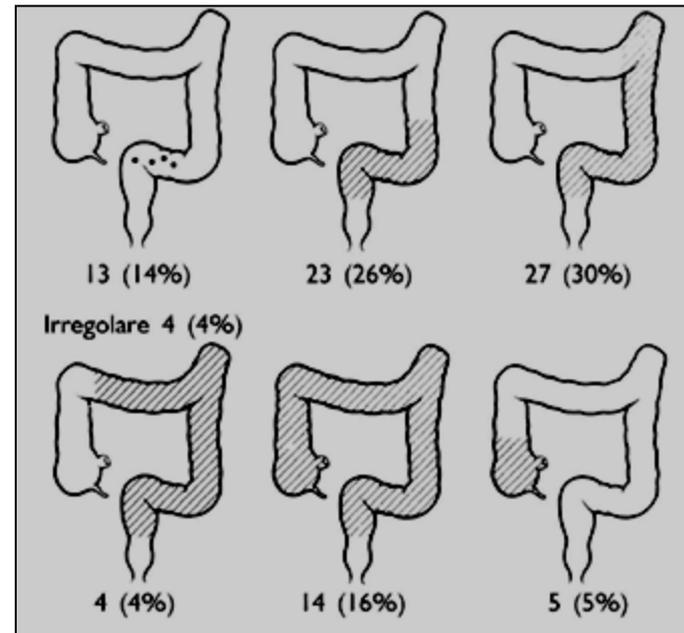
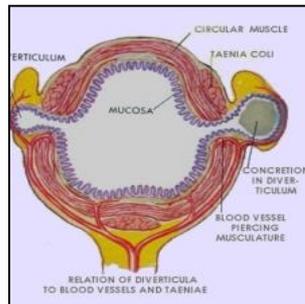
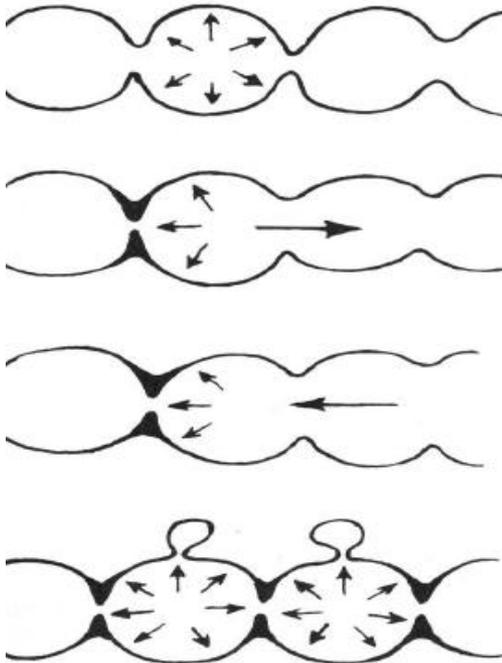
Major colonscopic findings in the US population

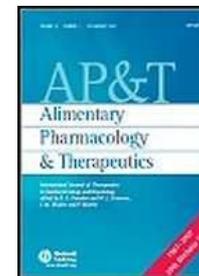


Pathogenesis of diverticular disease

Traditional aetiological factors implicated in diverticular disease

- Diet → Decreased fibre
Increased Luminal Pressure
- Structural → Abnormality of muscularis propria
Hyper Segmentation
- Ageing → Weakening of the bowel wall
↑↑ elastosis ↓↓ collagen fibres

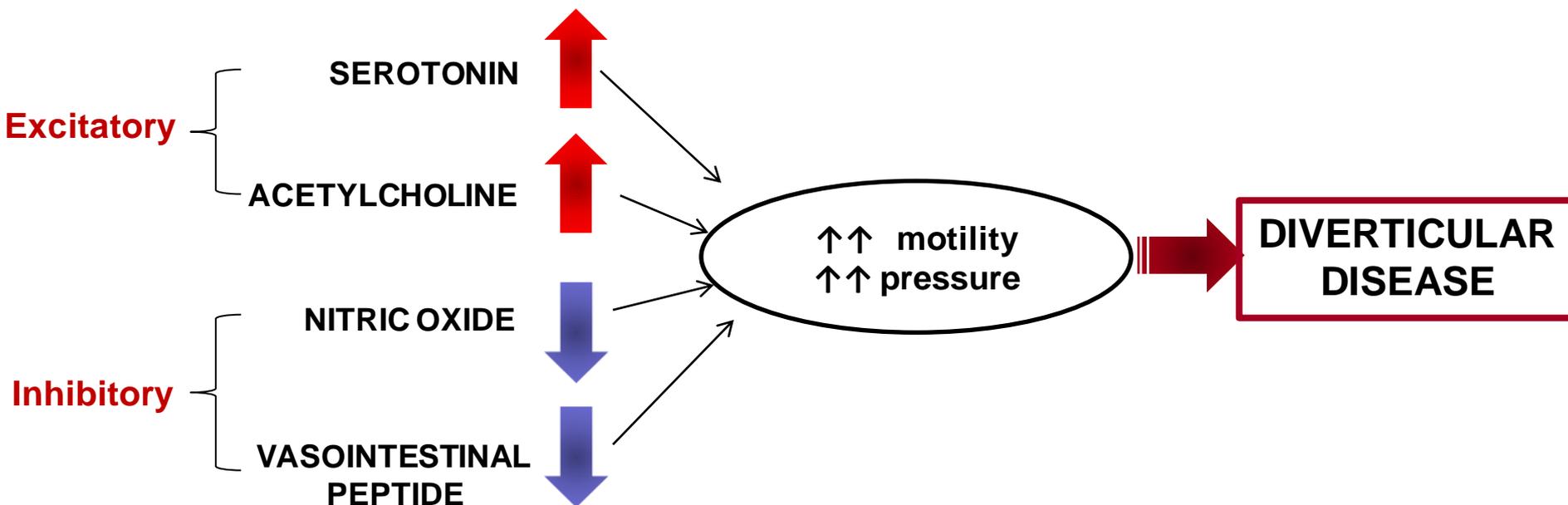




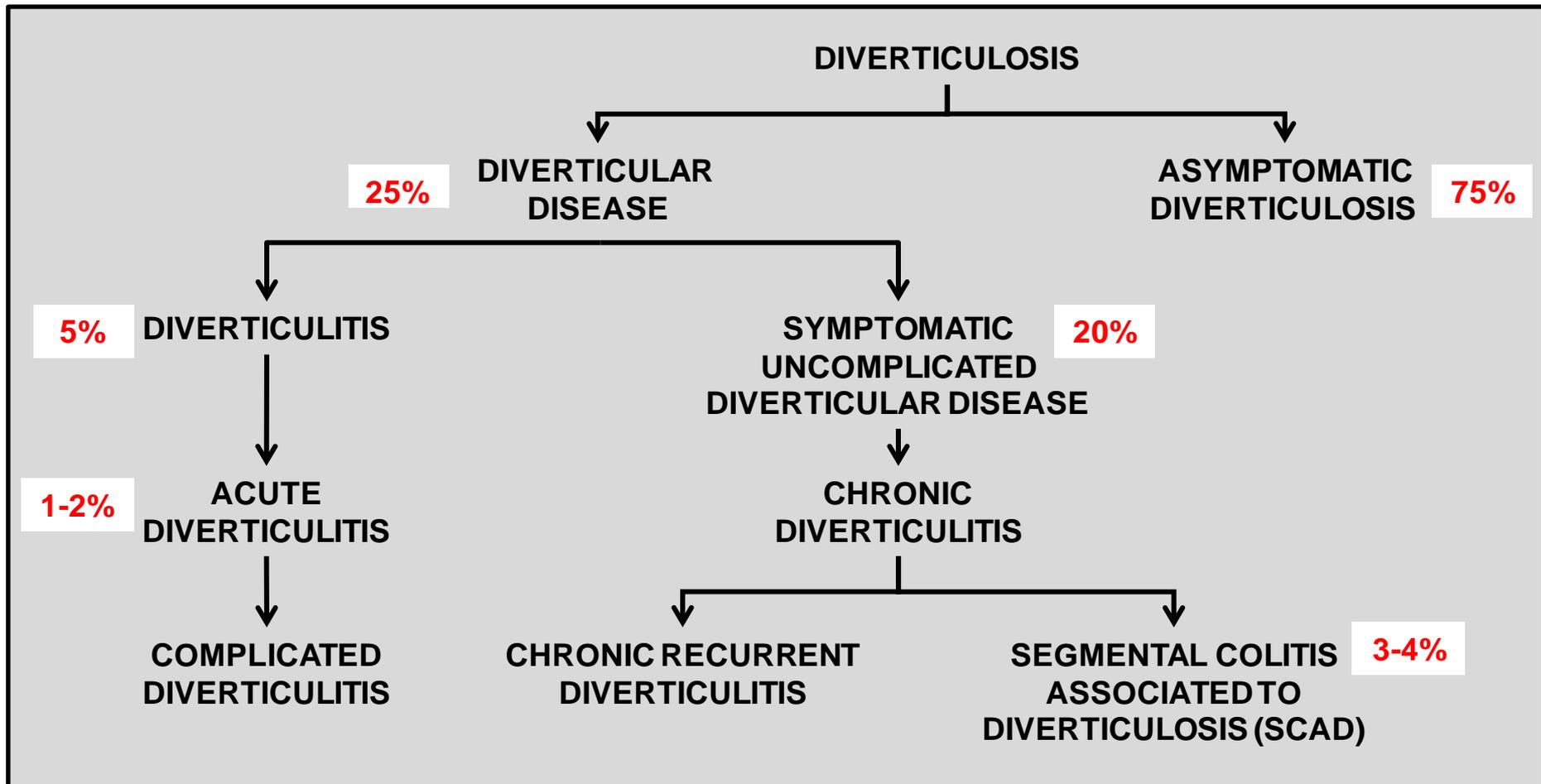
Review article: the pathogenesis of diverticular disease - current perspectives on motility and neurotransmitters

S. Jeyarajah & S. Papagrigoriadis

Neurotransmitters may play a role in the motility disturbances underlying the pathogenesis of diverticular disease



Classification of diverticular disease

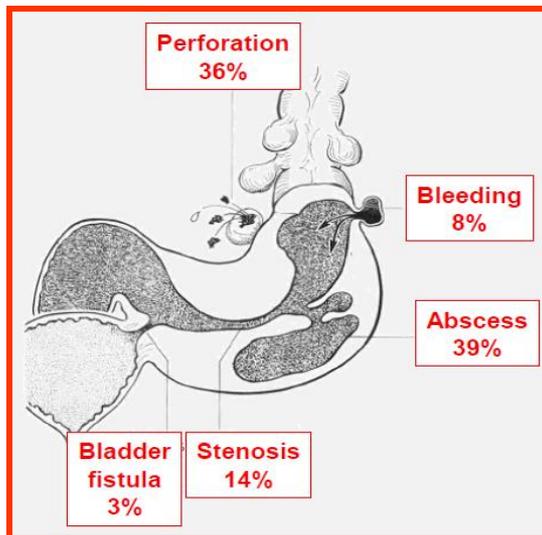


A minority of patients with diverticulosis will develop symptomatic disease and only few patients diverticulitis

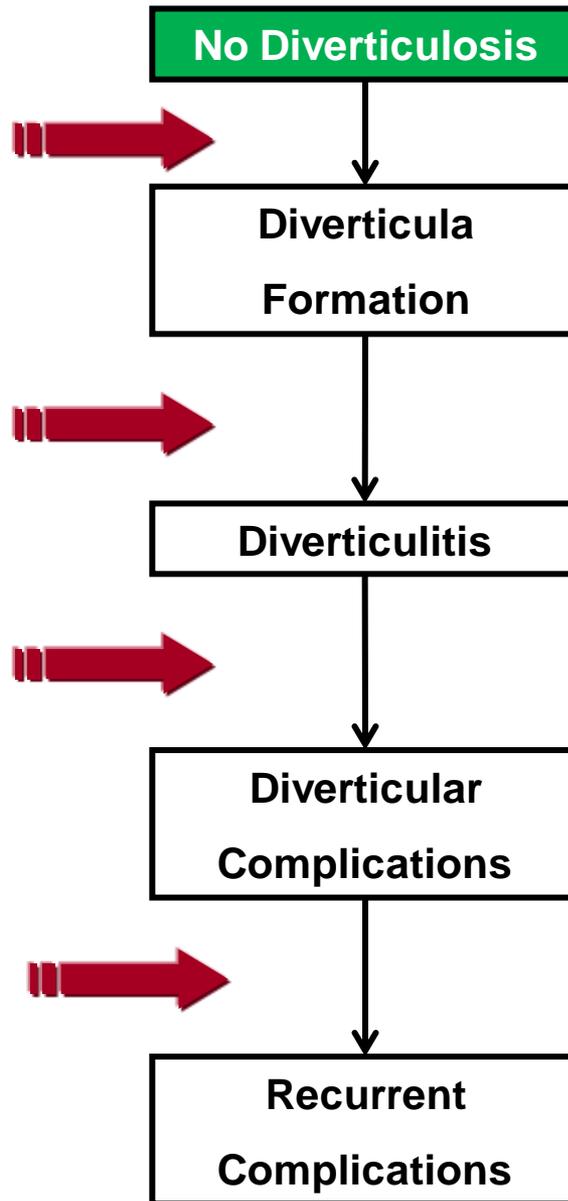
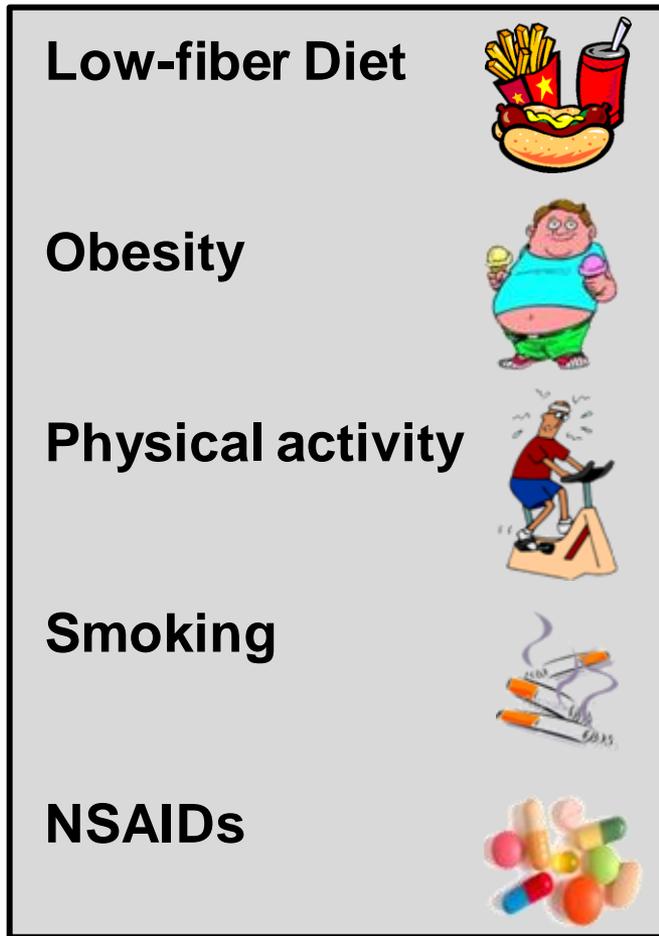
Despite the large epidemiological and economic burden of diverticular disease (**Pub Med Search n 17,916**) there is little knowledge about its management

Providers **still lack reliable answers** to common clinical questions

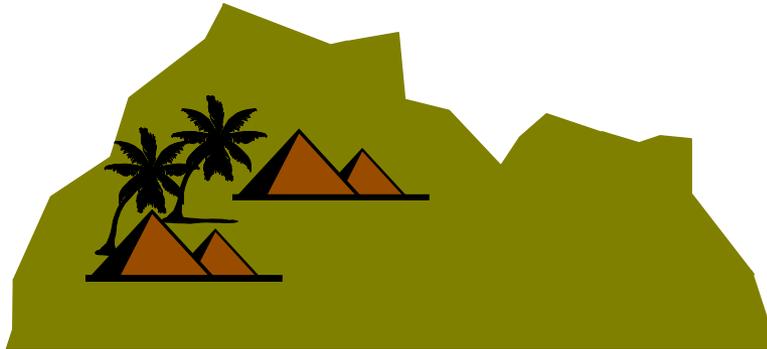
- ✓ Risk factors
- ✓ Disease Overlap
- ✓ Clinical management
- ✓ Surgery timing
- ✓ Cancer Risk
- ✓ Quality of life



RISK FACTORS



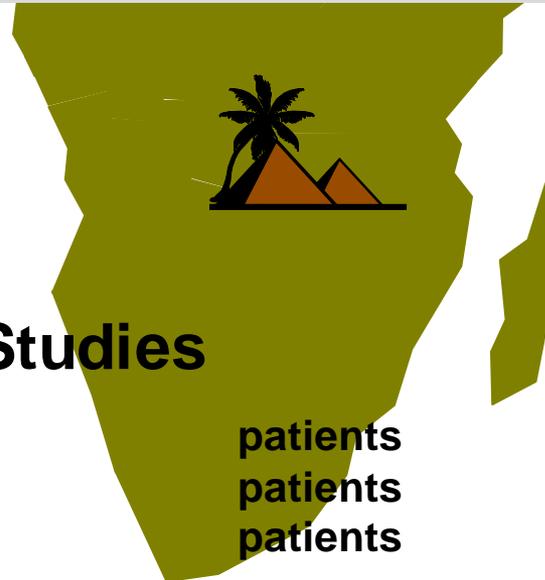
Fiber hypothesis (Painter and Burkitt 1971)



Diverticular Disease:

A “fiber-deficiency disease” of Western civilization

Rare in most African population using diet rich in fiber

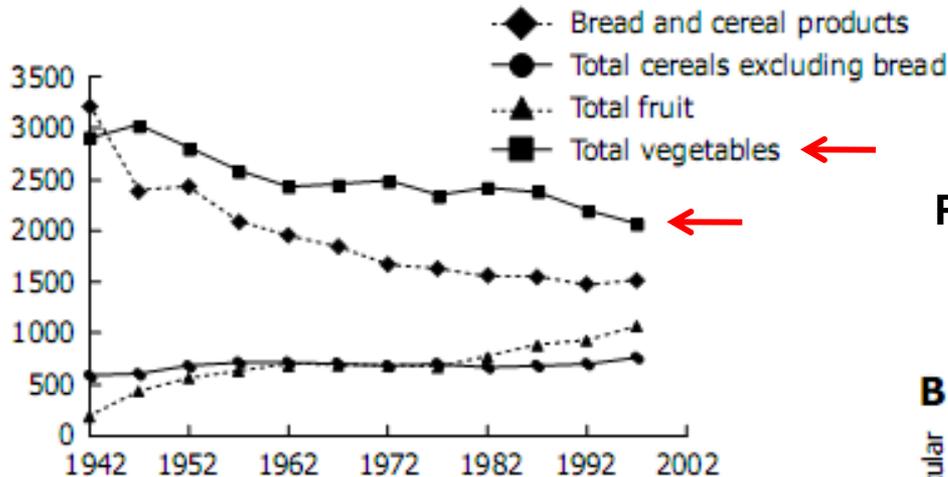


Large Epidemiological Studies

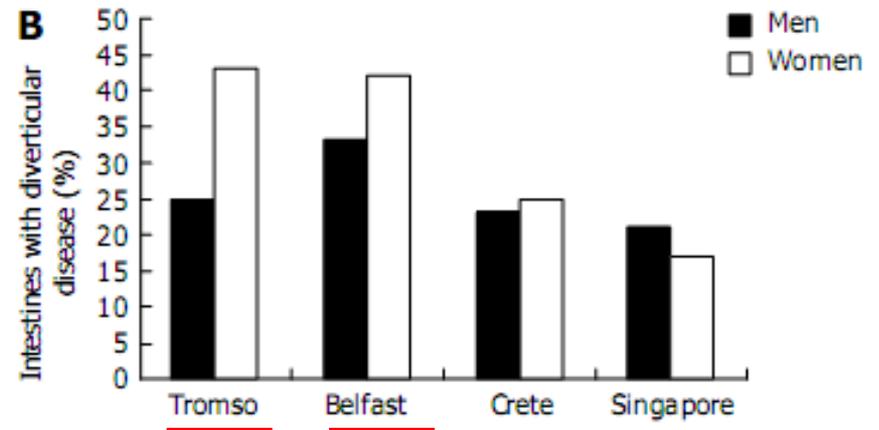
Aldoori	Am J Clin Nutr	1994	patients	51.529
Strate	JAMA	2008	patients	47.228
Crowe	BMJ	2011	patients	47.033

Diet, ageing and genetic factors in the pathogenesis of diverticular disease

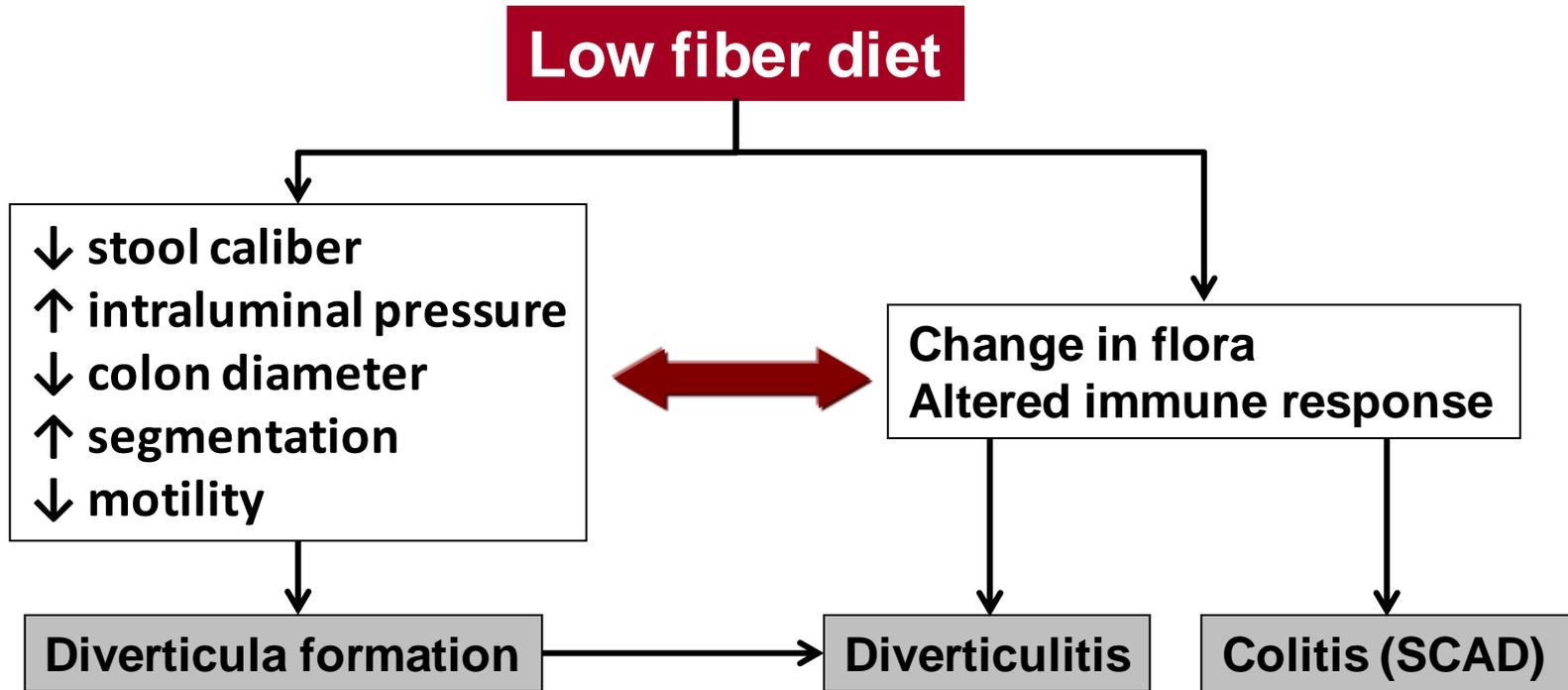
Consumption of dietary fiber in UK



Percentages of DD at autopsy by gender

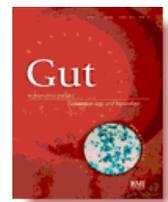


Theoretical progression from diverticula formation to diverticulitis



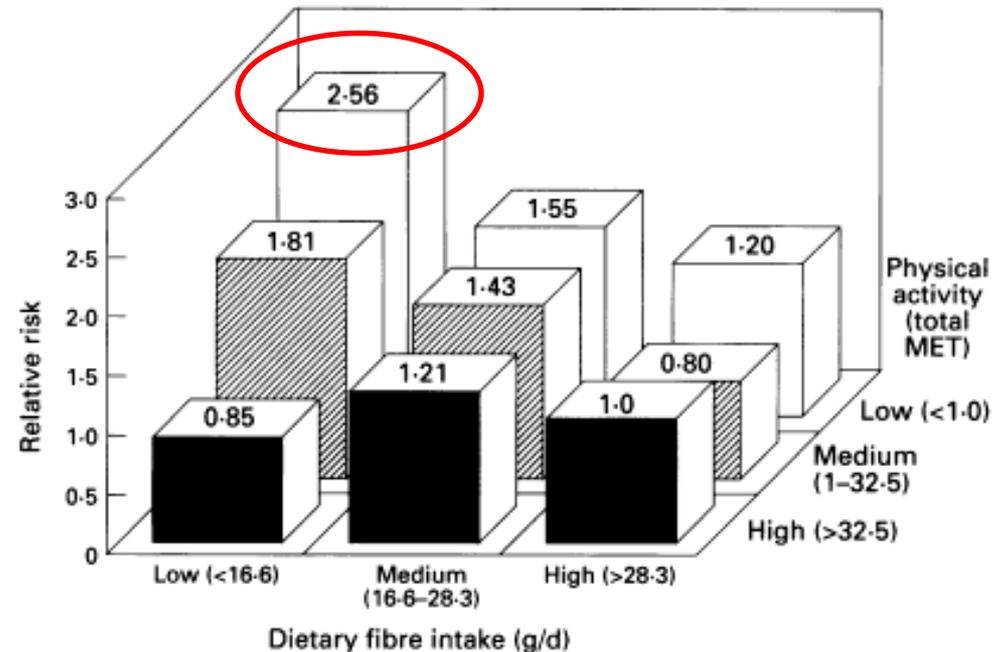
Prospective study of physical activity and the risk of symptomatic diverticular disease in men

Gut 1995; 36: 276-282



W H Aldoori, E L Giovannucci, E B Rimm, A Ascherio, M J Stampfer, G A Colditz, A L Wing, D V Trichopoulos, W C Willett

47,678 American men
40-75 year old
Follow up 4 years



Both low-fiber diet and physical inactivity may affect

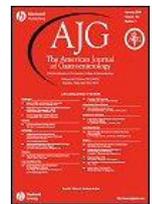
- motor function
- intracolonic pressure
- neuro-immuno-endocrine secretion

even though exact mechanisms of actions are poorly understood

Physical Activity Decreases Diverticular Complications

Lisa L. Strate, MD, MPH^{1,2}, Yan L. Liu, MS³, Walid H. Aldoori, MD, MPA, ScD⁴ and Edward L. Giovannucci, MD, ScD^{3,5,6}

2009



Prospective cohort study 47,228 male (40–75 years old)



Physical activity and sedentary behaviour and the risk of diverticulitis

	Total physical activity, MET-h/week (quintiles) ^a					P value for trend
	1	2	3	4	5	
Cases ^b	152	185	169	170	124	
Person-years	129,642	143,765	149,069	151,888	153,792	
Age-adjusted RR ^c	1.00	1.08	0.95	0.94	0.68	<0.001
95% CI	—	0.87–1.34	0.77–1.18	0.75–1.17	0.54–0.86	
Multivariable RR ^d	1.00	1.08	0.97	0.98	0.75	0.005
95% CI	—	0.87–1.34	0.77–1.21	0.78–1.23	0.58–0.95	

Physical activity and sedentary behaviour and the risk of diverticular bleeding

	Total physical activity, MET-h/week (quintiles) ^a					P value for trend
	1	2	3	4	5	
Cases ^b	91	93	75	69	55	
Person-years	129,642	143,765	149,069	151,888	153,792	
Age-adjusted RR ^c	1.00	0.92	0.72	0.66	0.52	<0.001
95% CI	—	0.69–1.23	0.53–0.98	0.48–0.90	0.37–0.73	
Multivariable RR ^d	1.00	0.91	0.71	0.66	0.54	<0.001
95% CI	—	0.68–1.22	0.52–0.98	0.48–0.92	0.38–0.77	

Obesity, Physical Inactivity, and Colonic Diverticular Disease Requiring Hospitalization in Women: A Prospective Cohort Study

2012



Fredrik Hjern, MD, PhD¹, Alicja Wolk, DMSc² and Niclas Håkansson, PhD²

A prospective population-based cohort study.
36,592 women, followed from 1997 to 2009



Relative Risk for diverticular disease requiring hospitalization by physical activity

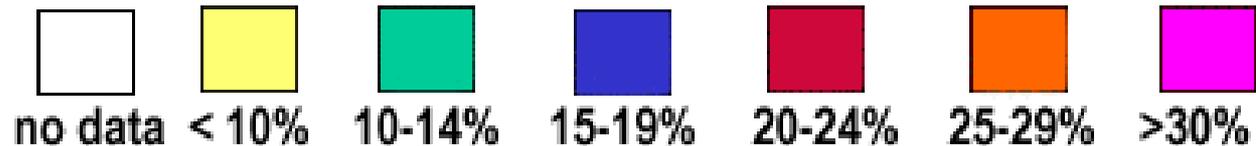
Physical activity	No. in cohort	No. of cases	Relative risk	
			Age-adjusted	Multivariable*
<i>Hospital requiring diverticular disease</i>				
≤30 min/day	8,722	197	1.53 (1.28 - 1.82)	1.42 (1.18, 1.69)
> 30 min/day	22,734	351	1.00 ^a	1.00 ^a
<i>Diverticular disease with abscess/perforation</i>				
≤30 min/day	8,722	22	0.96 (0.59, 1.56)	0.77 (0.47, 1.27)
> 30 min/day	22,734	63	1.00 ^a	1.00 ^a

Exercise \leq 30 min/day increased the risk for disease of 42% (1.42; 95% CI: 1.18-1.69) compared with exercise $>$ 30 min/day

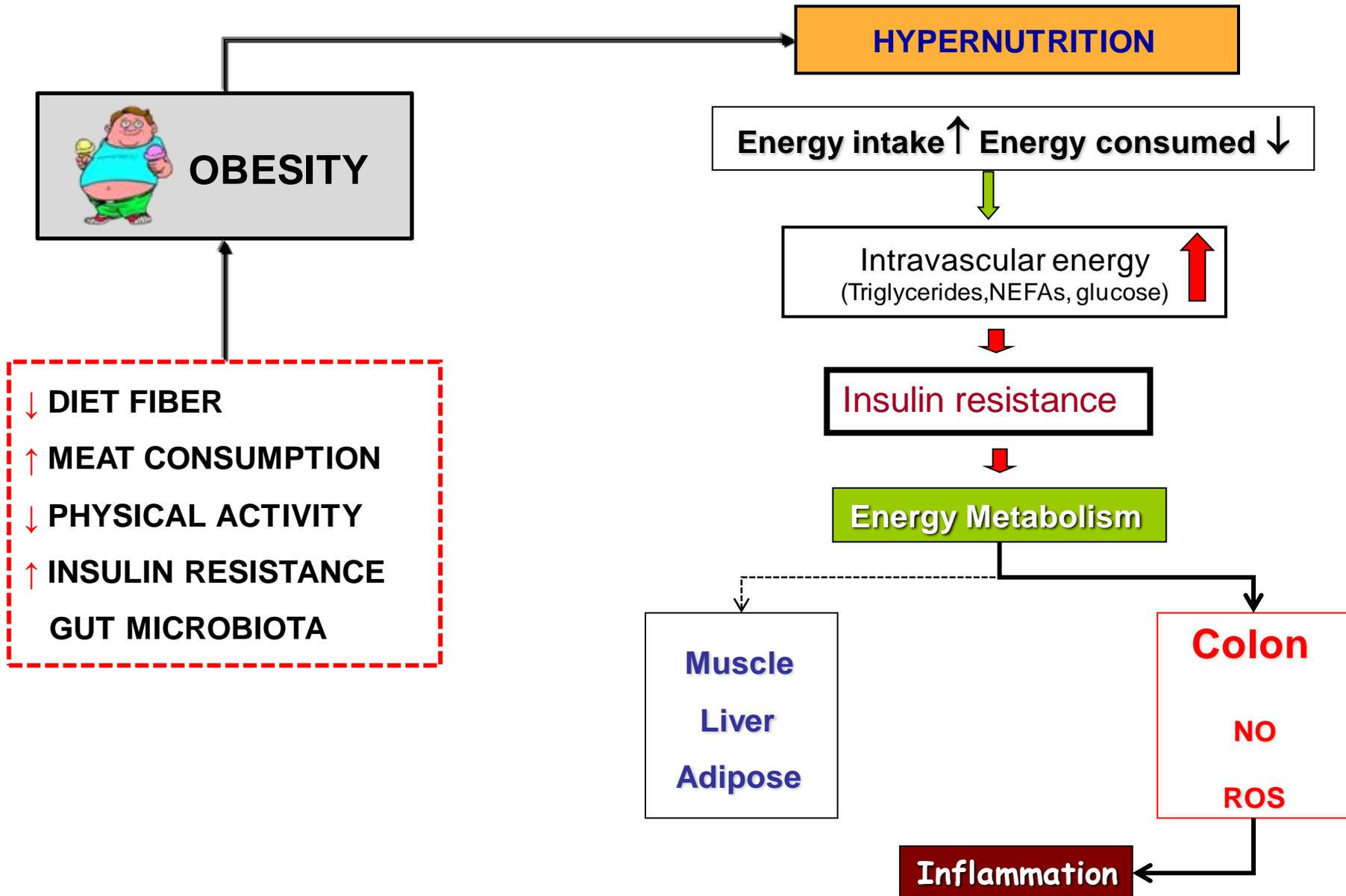
Prevalence of Obesity

Behavioral Risk Factor Surveillance System (BRFSS)
Data from U.S. Center for Disease Control

1985



Diet, Obesity and Colon Disease

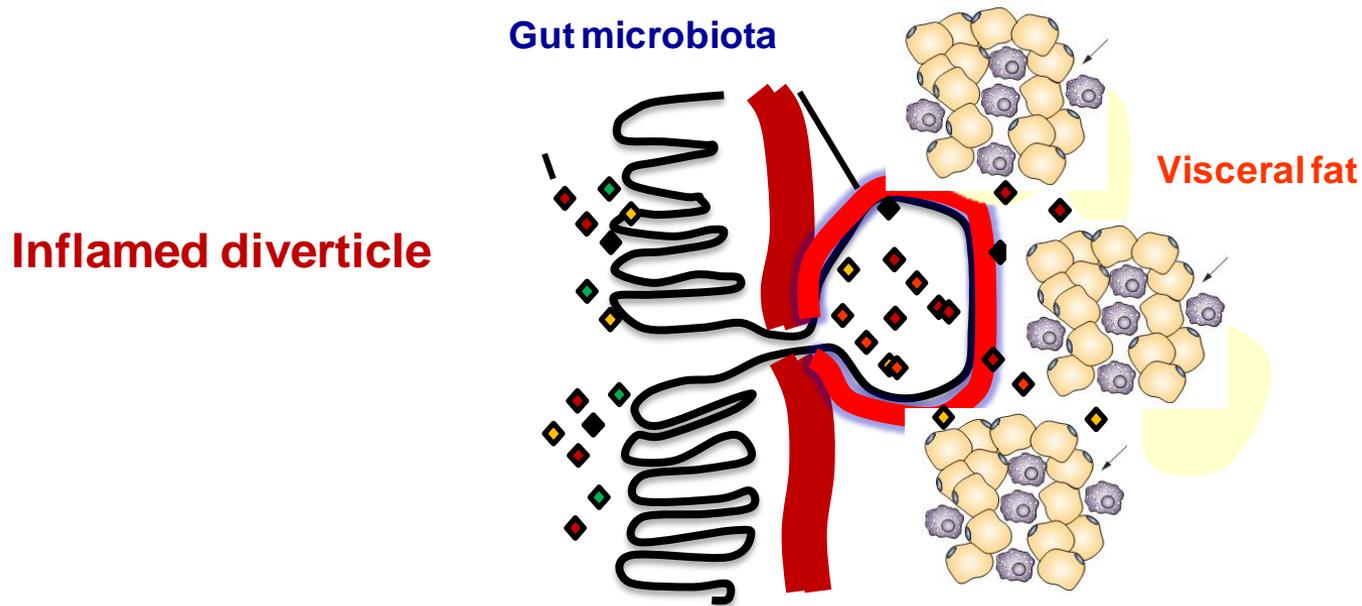


Adipose tissue is not simply a storage depot but an **active endocrine tissue** producing multiple proteins called **adipokines**

Leptin T Cell stimulation, Pro-inflammatory role

Adiponectin Anti-inflammatory role

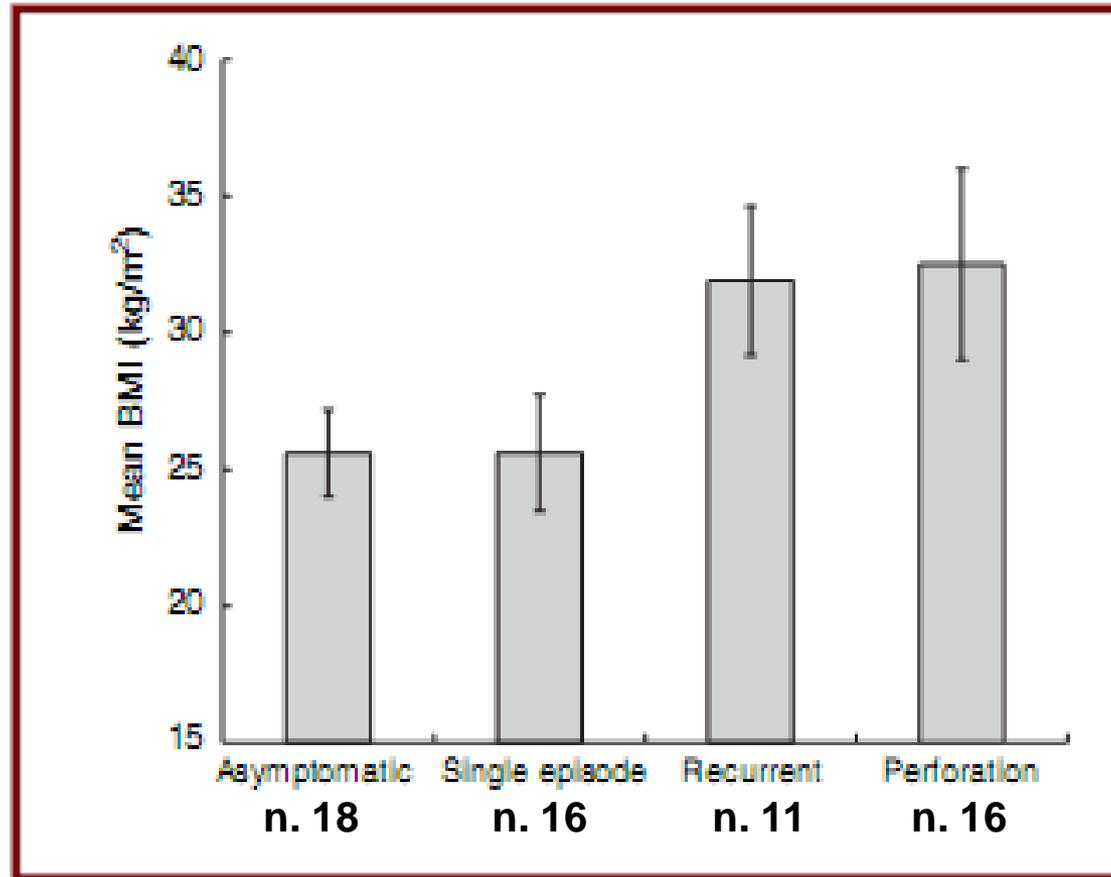
Adipose tissue is constituted by a milieu of fibroblast, endothelial cells, leukocytes and pro-inflammatory **macrophages type (M1)** that release inflammatory mediators (IL-6, IL-1, TNF- α and chemokines)



The relationship of obesity to the complications of diverticular disease

2005

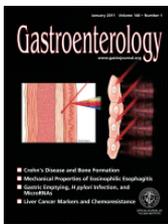
C. Dobbins, D. DeFontgalland, G. Duthie and D. A. Wattchow



Patients with perforation and recurrent diverticulitis have a significant greater BMI than those who remain asymptomatic or have one episode

Obesity Increases the Risks of Diverticulitis and Diverticular Bleeding

2009



LISA L. STRATE,^{*,‡} YAN L. LIU,[§] WALID H. ALDOORI,^{||} SAPNA SYNGAL,^{¶,#,**} and EDWARD L. GIOVANNUCCI,^{§,¶,†,§§}

A prospective cohort study of 47,228 **male** (40–75 years old) who were free of diverticular disease baseline.



Follow-up 18 years of

Results

801 incident cases of diverticulitis

383 incident cases of diverticular bleeding.

BMI and the RR of Diverticulitis and Diverticular Bleeding

	BMI (kg/m ²)						P value for trend
	<21	21–22.9	23–24.9	25–27.4	27.5–29.9	≥30	
Diverticulitis							
Incident cases (n)	18	83	189	256	138	117	
Person-years	27,077	94,855	190,528	229,361	109,135	79,491	
BMI >30 compared to BMI <21 had a RR of 1.78 for diverticulitis 3.19 for diverticular bleeding							
Person-years	27,077	94,855	190,528	229,361	109,135	79,491	
Age-adjusted RR ^a	1.00	1.68	1.83	2.45	2.04	3.46	<.001
95% CI	—	0.75–3.77	0.84–3.96	1.15–5.26	0.92–4.49	1.58–7.57	
Multivariable RR ^b	1.00	1.68	1.83	2.38	1.91	3.19	<.001
95% CI	—	0.75–3.76	0.85–3.97	1.11–5.09	0.87–4.23	1.45–7.00	

Waist Circumference and the RR of Diverticulitis and Diverticular Bleeding

	Waist circumference (quintiles) ^a					P value for trend
	Q1	Q2	Q3	Q4	Q5	
Diverticulitis						
Incident cases (n)	86	115	93	125	137	
Person-years	99,564	102,191	81,158	107,476	87,986	
Age-adjusted RR ^b	1.00	1.27	1.29	1.29	1.72	<.001
Highest Waist Q5 had a RR of 1.56 for diverticulitis 1.96 for diverticular bleeding						
Person-years	99,564	102,191	81,158	107,476	87,986	
Age-adjusted RR ^b	1.00	0.90	1.45	1.37	2.01	<.001
95% CI	—	0.57–1.43	0.94–2.24	0.91–2.07	1.35–3.00	
Multivariable RR ^c	1.00	0.91	1.44	1.36	1.96	<.001
95% CI	—	0.57–1.44	0.93–2.23	0.90–2.08	1.30–2.97	

Obesity, Physical Inactivity, and Colonic Diverticular Disease Requiring Hospitalization in Women: A Prospective Cohort Study

2012



Fredrik Hjern, MD, PhD¹, Alicja Wolk, DMSc² and Niclas Håkansson, PhD²

A prospective population-based cohort study.
36,592 women followed from 1997 to 2009



Relative Risk for diverticular disease requiring hospitalization by BMI

BMI (kg/m ²)	No. in cohort	No. of cases	Relative risk	
			Age-adjusted	Multivariable*
<20	2192	33	1.05 (0.73, 1.51)	1.01 (0.70, 1.45)
20–24.99	17,864	261	1.00 ^b	1.00 ^b
25–29.99	11,970	242	1.33 (1.11, 1.58)	1.29 (1.08, 1.54)
≥30	3,797	83	1.47 (1.15, 1.88)	1.33 (1.03, 1.72)

BMI

- **25–29.9** had 29% increased risk (RR = 1.29; 95% CI: 1.08-1.54)
- **≥ 30** had 33% increased risk (RR = 1.33; 95 % CI: 1.03–1.72)

of diverticular disease compared to women with BMI 20–24.9.



Smoking and nicotine have several actions that are likely to affect the **pathogenesis of diverticulitis**, such as

- negative effects on the immune system
- activation of the autonomic nervous system
- impairment of blood supply

Smoking and nicotine has several functions that could affect the **progress to perforation**, such as

- inhibition of cytokine and leucocyte function
- decreased collagen formation
- increased intestinal motility
- increased intraluminal pressure
- impairment of blood supply to the colonic mucosa
- increased tissue permeability

A Cohort of 35.809 Swedish Women born between 1914 and 1948

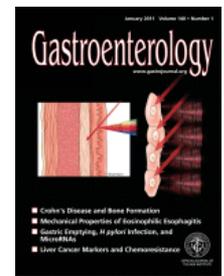
During a 12 year follow up 561 (1,6%) had symptomatic diverticular disease

Multivariable relative risks for **symptomatic** diverticular disease by smoking

	No. in cohort†	n‡	Relative risk	
			Age-adjusted	Multivariable§
Non-smokers	19 301	285	1.00‡	1.00‡
All smokers* (cigarettes/day)	16 508	276	1.32 (1.11, 1.57)	1.24 (1.04, 1.48)
1-9	7 295	118	1.22 (0.98, 1.52)	1.19 (0.96, 1.49)
≥ 10	8 334	132	1.32 (1.07, 1.64)	1.19 (0.96, 1.48)
Current smokers (cigarettes/day)	8 328	136	1.30 (1.06, 1.61)	1.23 (0.99, 1.52)
1-9	3 368	57	1.28 (0.96, 1.70)	1.27 (0.95, 1.70)
≥ 10	4 571	67	1.21 (0.92, 1.59)	1.08 (0.82, 1.42)
Past smokers (cigarettes/day)	8 180	140	1.34 (1.09, 1.64)	1.26 (1.02, 1.56)
1-9	3 927	61	1.17 (0.89, 1.55)	1.13 (0.85, 1.50)
≥ 10	3 763	66	1.46 (1.11, 1.92)	1.33 (1.01, 1.76)

Multivariable relative risks of **complicated** diverticular disease by smoking

	No. in cohort†	n‡	Relative risk	
			Age-adjusted	Multivariable§
Non-smokers	19 301	43	1.00‡	1.00‡
All smokers* (cigarettes/day)	16 508	47	1.55 (1.01, 2.38)	1.48 (0.95, 2.29)
1-9	7 295	22	1.54 (0.91, 2.58)	1.54 (0.91, 2.62)
≥ 10	8 334	23	1.59 (0.94, 2.71)	1.45 (0.84, 2.50)
Current smokers (cigarettes/day)	8 328	30	1.99 (1.23, 3.22)	1.89 (1.15, 3.10)
1-9	3 368	15	2.27 (1.25, 4.10)	2.30 (1.26, 4.20)
≥ 10	4 571	13	1.63 (0.86, 3.08)	1.46 (0.76, 2.81)
Past smokers (cigarettes/day)	8 180	17	1.12 (0.62, 1.95)	1.07 (0.60, 1.92)
1-9	3 927	7	0.91 (0.41, 2.04)	0.91 (0.40, 2.04)
≥ 10	3 763	10	1.56 (0.77, 3.25)	1.45 (0.71, 2.96)



CLINICAL—ALIMENTARY TRACT

Use of Aspirin or Nonsteroidal Anti-inflammatory Drugs Increases Risk for Diverticulitis and Diverticular Bleeding

Dose of Aspirin Use and risk of Diverticulitis and Diverticular Bleeding

	Tablets/wk, 325 mg				P for trend
	None	0.1-1.9	2-5.9	≥6	
Person-years	127,213	107,535	98,505	47,467	
Diverticulitis					
Incident cases	124	110	128	58	
Age-adjusted HR (95% CI) ^a	1.0	1.09 (0.83-1.41)	1.35 (1.05-1.73)	1.21 (0.88-1.66)	.09
Multivariate HR (95% CI) ^b	1.0	1.02 (0.78-1.33)	1.26 (0.97-1.62)	1.11 (0.81-1.52)	.28
Diverticular bleeding					
Incident cases	19	34	47	16	
Age-adjusted HR (95% CI) ^a	1.0	1.81 (1.02-3.21)	2.75 (1.60-4.71)	2.02 (1.04-3.95)	.02
Multivariate HR (95% CI) ^b	1.0	1.58 (0.88-2.82)	2.32 (1.34-4.02)	1.65 (0.84-3.26)	.10

Frequency of Aspirin Use and risk of Diverticulitis and Diverticular Bleeding

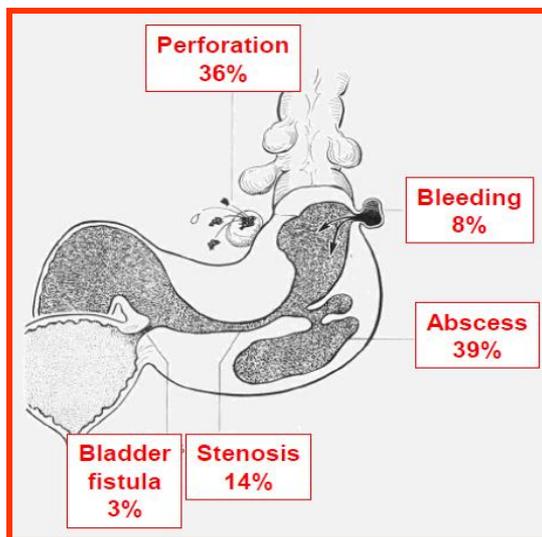
	Days per week					P for trend
	None	<2	2-3.9	4-6	Daily	
Person-years	220,303	50,674	21,787	40,153	71,418	
Diverticulitis						
Incident cases	194	50	24	54	102	
Age-adjusted HR (95% CI) ^a	1.0	0.94 (0.68-1.31)	1.05 (0.69-1.61)	1.30 (0.94-1.78)	1.52 (1.18-1.95)	<.001
Multivariate HR (95% CI) ^b	1.0	0.88 (0.64-1.23)	0.99 (0.65-1.53)	1.24 (0.90-1.71)	1.46 (1.13-1.88)	.002
Diverticular bleeding						
Incident cases	43	9	5	24	36	
Age-adjusted HR (95% CI) ^a	1.0	1.20 (0.57-2.55)	1.35 (0.53-3.46)	3.49 (2.05-5.96)	1.87 (1.19-2.95)	<.001
Multivariate HR (95% CI) ^b	1.0	1.08 (0.51-2.30)	1.21 (0.47-3.11)	3.13 (1.82-5.38)	1.57 (0.98-2.51)	.003

Regular use of aspirin or NSAIDs is associated with an increased risk of diverticular disease and diverticula bleeding

Despite the large epidemiological and economic burden of diverticular disease (Pub Med Search n 17,916) there is little knowledge about its management

Providers still lack reliable answers to common clinical questions

- ✓ Risk factors
- ✓ **Disease Overlap**
- ✓ Clinical management
- ✓ Surgery timing
- ✓ Cancer Risk
- ✓ Quality of life

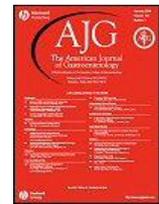


Is it Diverticular Disease or Is it Irritable Bowel Syndrome ?

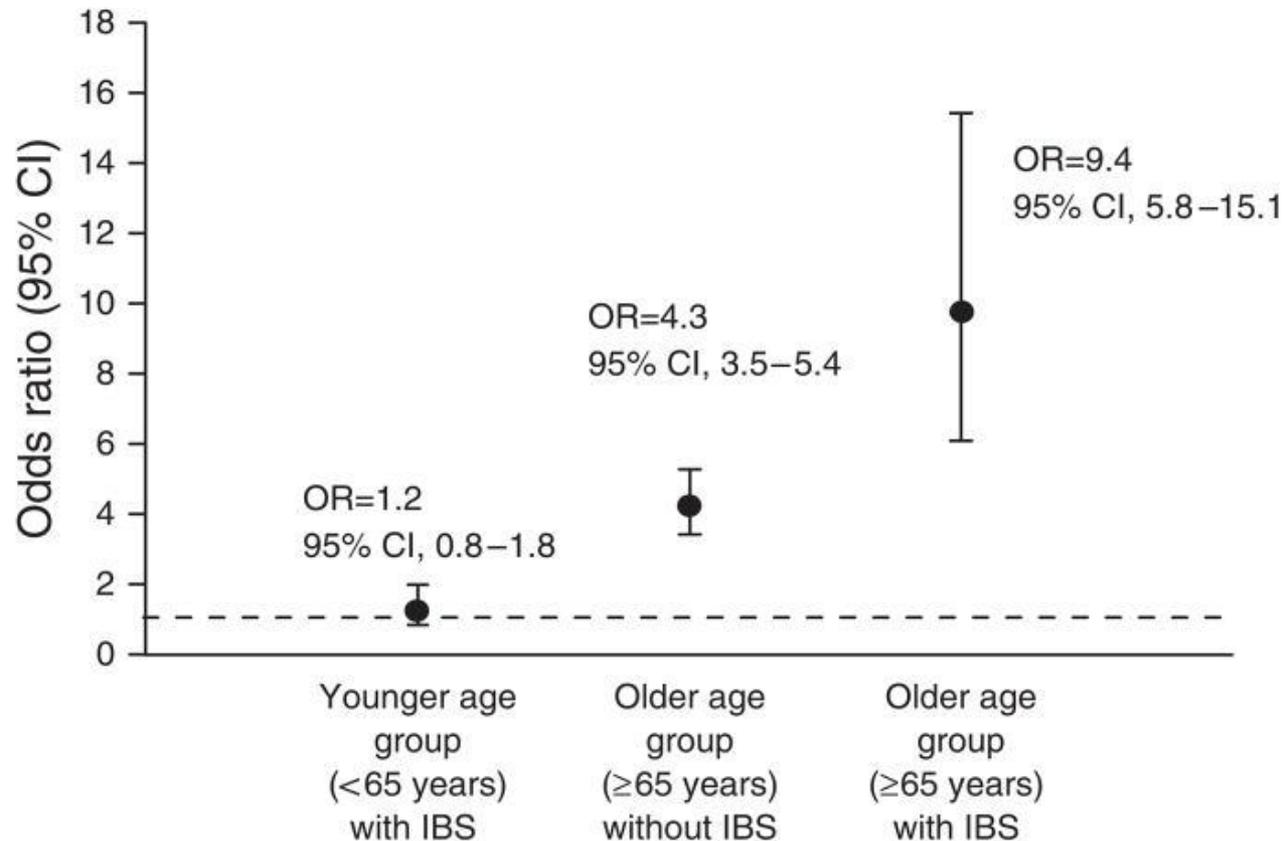
	SYMPTOMATIC UNCOMPLICATED DD	IRRITABLE BOWEL SYNDROME
Onset Age	VI-VIII decades	III-V decades
Pain duration	1-2 weeks with long periods with no attacks	1-12 hours with a periodicity of 2-3 days
Pain localization	Left iliac fossa	Diffuse
Pain characteristics	Not related to bowel movements	Relief of pain by defecation
Bowel habit	During pain diarrhea	During pain both diarrhea or constipation
Systemic involvement	Occasionally fever	Absent
Laboratory findings	↑White count, RCP, ESV Fecal calprotectin (?)	Normal

Diarrhea-Predominant Irritable Bowel Syndrome Is Associated With Diverticular Disease: A Population-Based Study

2010



Hye-kyung Jung, MD^{1,2}, Rok Seon Choung, MD¹, G. Richard Locke III, MD¹, Cathy D. Schleck, BS³, Alan R. Zinsmeister, PhD³ and Nicholas J. Talley, MD, PhD^{1,4}



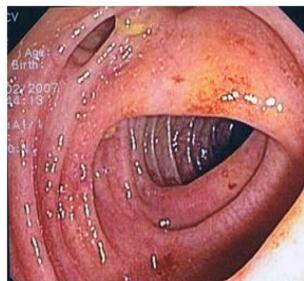
There is a significantly increased odds for colonic diverticulosis in subjects with IBS. These results suggest that **IBS and colonic diverticular disease may be connected.**

REVIEW

Segmental Colitis Associated with Diverticulosis: Complication of Diverticular Disease or Autonomous Entity?

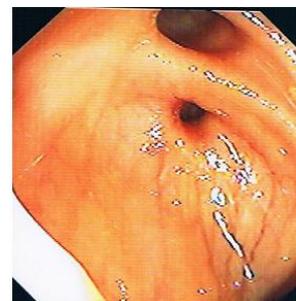
Endoscopic prevalence

- 0,25-1,48% on total colonoscopies
- 1,15-11,4% in patients with diverticulosis



SIMILARITIES

- Colonic site
- Endoscopic lesions
- Histology
- TNF α expression
- Antibiotic response



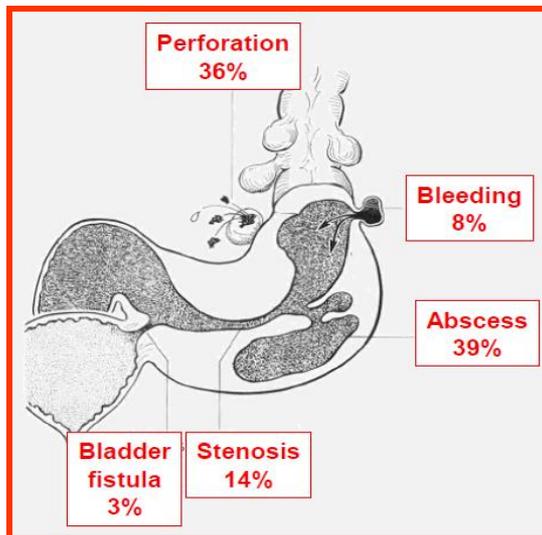
DIFFERENCES

- Onset age
- Rectum sparing in SCAD
- Inflammatory infiltrate site
- Relapse rate
- Need for maintenance therapy

Despite the large epidemiological and economic burden of diverticular disease (Pub Med Search n 17,916) there is little knowledge about its management

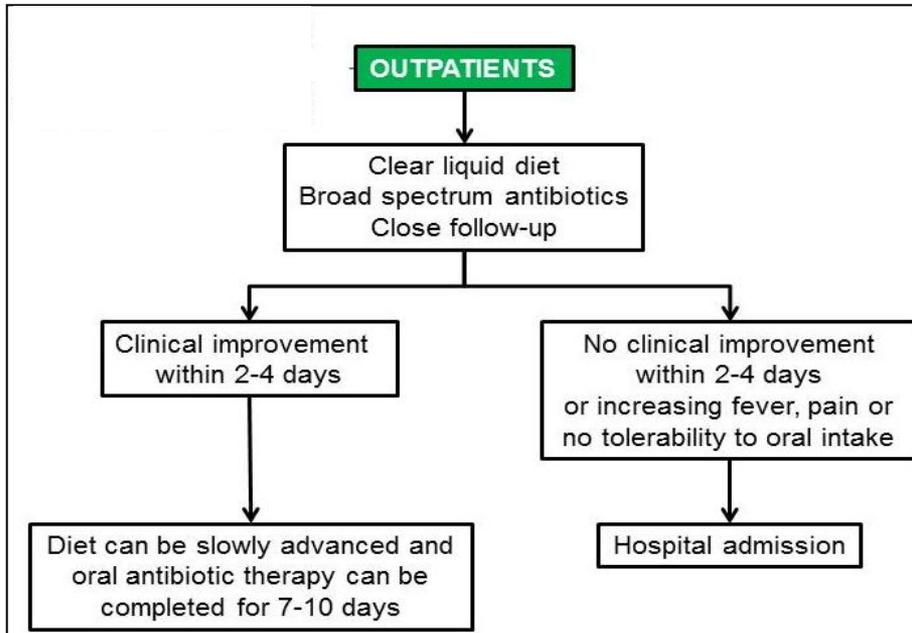
Providers still lack reliable answers to common clinical questions

- ✓ Risk factors
- ✓ Disease Overlap
- ✓ **Clinical management**
- ✓ Surgery timing
- ✓ Cancer Risk
- ✓ Quality of life

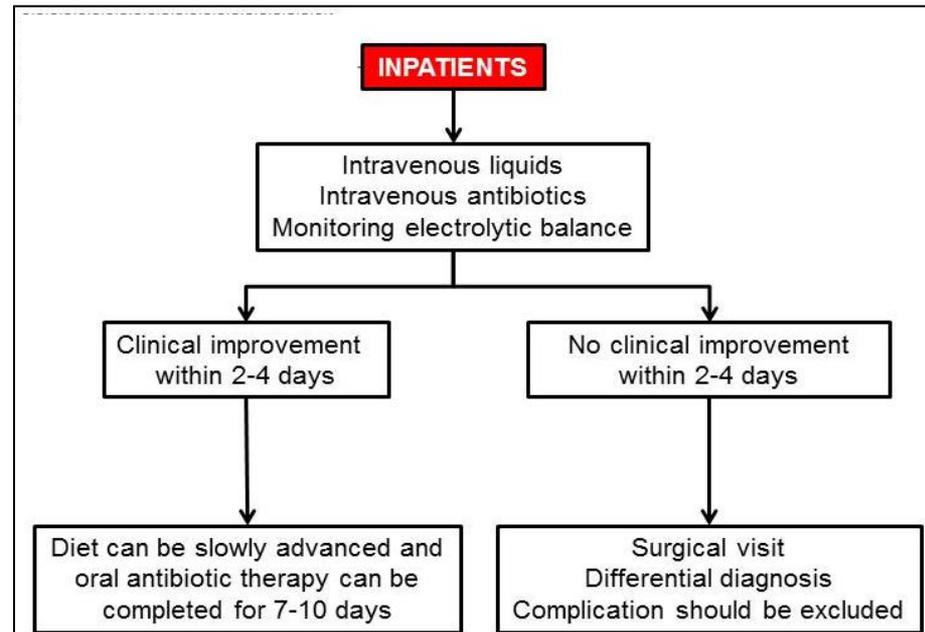


MANAGEMENT OF ACUTE DIVERTICULITIS

No severe symptoms No comorbidity



Severe symptoms and/or Comorbidity



Antibiotic Treatment

SEVERITY	CONDITION	MICROORGANISM	ANTIBIOTIC CHOICE
Low risk	Diverticulitis	Aerobes E. Coli Klebsiella Streptococco Proteus sp Enterobacter Anaerobes Bacteroides fragilis Peptostreptococcus Peptococco Clostridium	Cotrimossazolo + Metronidazolo Ciprofloxacina/Cefalosporina + Metronidazolo
Mild risk	Complicated Diverticulitis - Abscess	Aerobes Anaerobes Pseudomonas	Ampicillina + Aminoglicoside + Metronidazolo Ciprofloxacina + Metronidazolo
High risk	Complicated Diverticulitis - Perforation Immunodeficient pts	Independently of the involved microorganism	Imipemen/Cilastina Ampicillina/Sulbactam Ticarcillina Clavulanico

One of today's controversies remains the management of symptomatic uncomplicated diverticular disease and prevention of diverticulitis

CLINICAL REVIEW

2008

Treatment Options for Uncomplicated Diverticular Disease of the Colon

Alba Rocca, MD, PhD, Debora Compare, MD, Flora Carusa, MD, and Gerardo Nardone, MD

A **fiber rich diet** can be recommended to reduce intraluminal pressure and slow down the worsening of the disease

The best results have been obtained by combination of **soluble fiber** and poorly absorbed antibiotics, like **rifaximin**, given 7 to 10 days every month

Probiotics and mesalazine no definite data

CURRENT STATUS

2011

Treatment of Diverticular Disease of the Colon and Prevention of Acute Diverticulitis: A Systematic Review

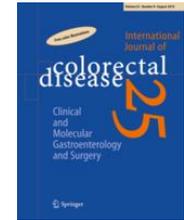
*Giovanni Maconi, M.D.¹ • Giovanni Barbara, M.D.² • Cristina Bosetti, Sc.D.³
Rosario Cuomo, M.D.⁴ • Bruno Annibale, M.D.⁵*

Significant improvement in symptoms with **fiber plus rifaximin** VS fiber alone.

The number needed to treat is 57, to prevent an attack of acute diverticulitis.

The treatment relies mainly on data from uncontrolled studies.

The prevention of acute diverticulitis remains to be defined.



REVIEW

A systematic review of high-fibre dietary therapy in diverticular disease

2012

Organisation	Year	Fibres recommended preventing diverticular disease	Original research cited	Fibres recommended in treatment of symptomatic diverticular disease	Original research cited	Fibres recommended in preventing recurrence of diverticulitis	Original research cited
American College of Gastroenterology [14]	1999	Yes	Aldoori et al. [15]	Yes	Brodribb [16], Ornstein et al. [17]	Not mentioned	
European Association for Endoscopic Surgery [18]	1999	Yes	Brodribb and Humphreys [19], Gear et al. [20]	Yes	Brodribb [16]	Yes	None
American Society of Colon and Rectal Surgeons [21]	2006	Not mentioned		Not mentioned		Yes	Larson et al. [22], Painter [23]
World Gastroenterology Organization [24]	2007	Yes	Painter and Burkitt [6] Talbot [25]	Yes	Nair and Mayberry [26], Aldoori et al. [15]	Not mentioned	

Evidence for a high-fibre diet in the treatment of diverticular disease **is lacking**

Most recommendations are based on inconsistent level
Nevertheless, high-fibre diet is still recommended in several guidelines.

REVIEW

Systematic review of medical therapy to prevent recurrent diverticulitis

Potentially relevant articles **n.84**

Articles included in systematic review **n. 3**

	Group A (Mesalazine + Rifaximin); n=104	Group B (Only Rifaximin); n=89	P value
Regular bowel habits	82 (78.8 %)	53 (59.5 %)	<0.0005
Symptom-free	89 (85.6 %)	44 (44.4 %)	<0.0001
Recurrence of diverticulitis	3 (2.7 %)	16 (18.0 %)	<0.01

	Group A (Probiotic group) after 3 months n=43	Group B (control group) after 3 months n=40	P value
Recurrent abdominal pain score	64	113	<0.01 (A)
Intermittent diarrhea score	58	79	
Abdominal bloating score	69	94	
Fever	10	26	
Recurrent diverticulitis	2 (5 %)	5 (12 %)	

	Group A (Balsalazide + VSL#3) after 12 month, n=15	Group B (VSL3#) after 12 month, n=15	
Recurrent diverticulitis	1 (7 %)	2 (13 %)	ns
Symptom-free	11 (73 %)	8 (60 %)	ns

The evidence that supports medical therapy is of **poor quality**.

Treatment with 5-ASA could be promising.

Based on current data, **no recommendation** of any prevention therapy can be made.



Agenzia Italiana del Farmaco

AIFA

**BANDO AIFA 2012
PER LA RICERCA INDIPENDENTE SUI FARMACI**

**Valutazione dell'appropriatezza d'uso d'antibiotici e mesalazina nel trattamento delle
malattia diverticolare**

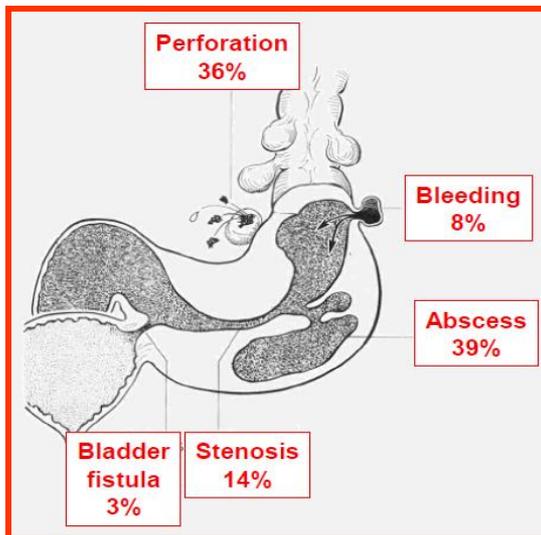
Motivazione della tematica B.7

La malattia diverticolare con le sue complicanze ha una elevata incidenza nella popolazione
oltre i 60 anni d'età. Questi pazienti sono sottoposti, in maniera empirica, a trattamenti
con antibiotici intestinali e/o mesalazina pur in mancanza di studi adeguati a valutarne
l'appropriatezza ed i reali benefici. Dato che questi trattamenti vengono spesso prescritti
per lunghi periodi di tempo con il presupposto, mai dimostrato, di prevenire le complicanze
della malattia diverticolare, è opportuno stimolare studi multicentrici capaci di dare una
risposta definitiva sull'argomento

Despite the large epidemiological and economic burden of diverticular disease (Pub Med Search n 17,916) there is little known about its management

Providers still lack reliable answers to common clinical questions

- ✓ Risk factors
- ✓ Disease Overlap
- ✓ Clinical management
- ✓ **Surgery timing**
- ✓ Cancer Risk
- ✓ Quality of life



SURGERY TIMING



American Society of Colon and Rectal Surgeons guidelines suggested preemptive surgery for any patient who has had two attacks of acute diverticulitis

Why? to prevent another attack that could present with perforation and would necessitate a stoma

This recommendation for surgery is based on the data published in 1969 by Parks showing that

for each subsequent attack of diverticulitis

the mortality rate increases from 4.7% to 7.8%

each subsequent attack of diverticulitis

is less likely to respond to medical therapy

first episode 70% vs third episode 6% response

The Timing of Elective Colectomy in Diverticulitis: A Decision Analysis by the American College of Surgeons



200,000 hospitalization/year health care cost > \$ 300 milion

Non operative management is usually successful in diverticulitis

80% with diverticulitis never require a second hospitalization

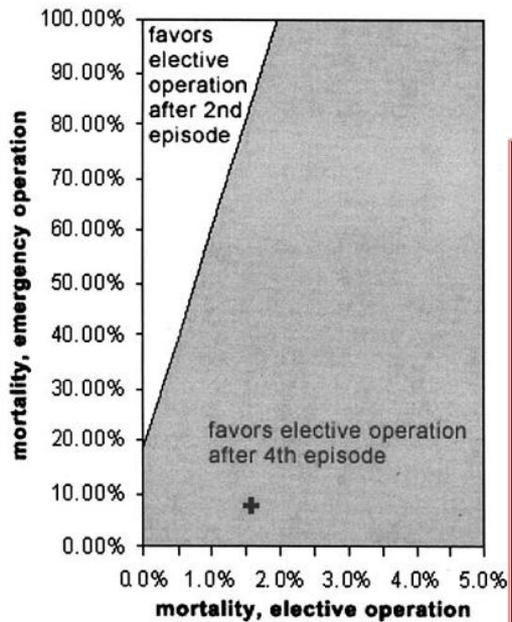
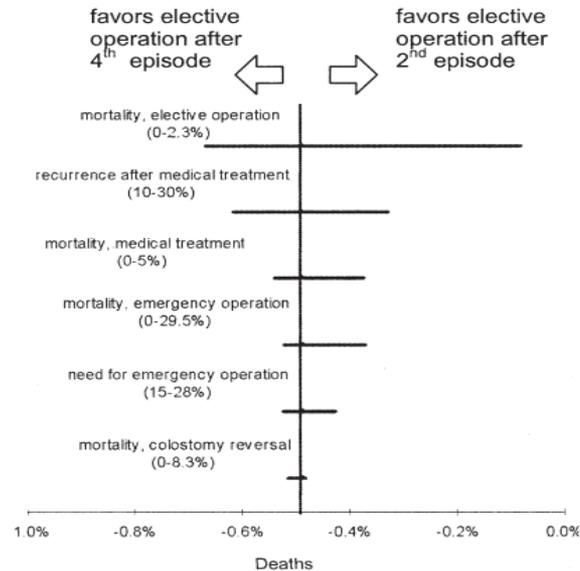
A Markov decision and cost analysis model
using hypothetical cohorts of patients



Colectomy after
the fourth rather than the second episode
in patients older than 50 years

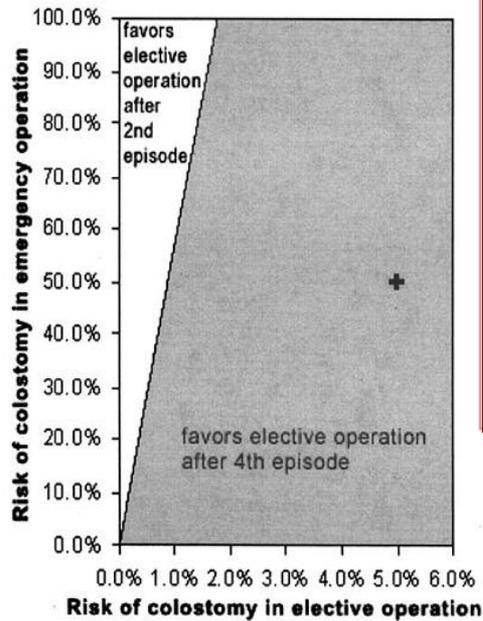
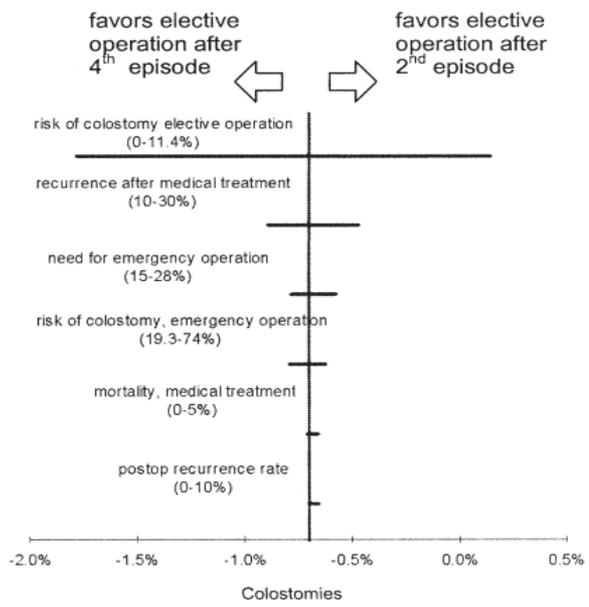


One-way sensitivity analysis Two-way sensitivity analysis



Colectomy after the IV episode rather than the II second episode in patients older than 50 years resulted in

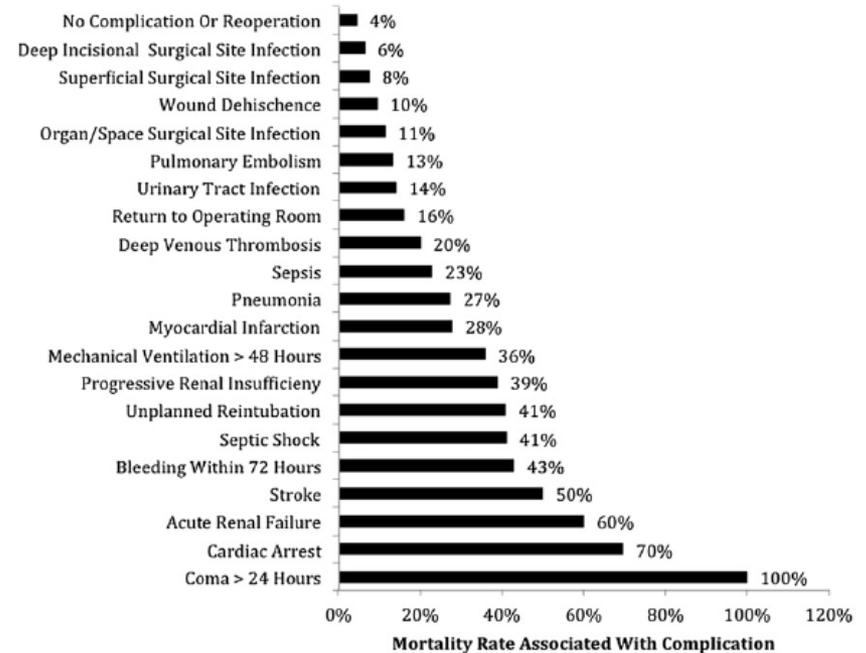
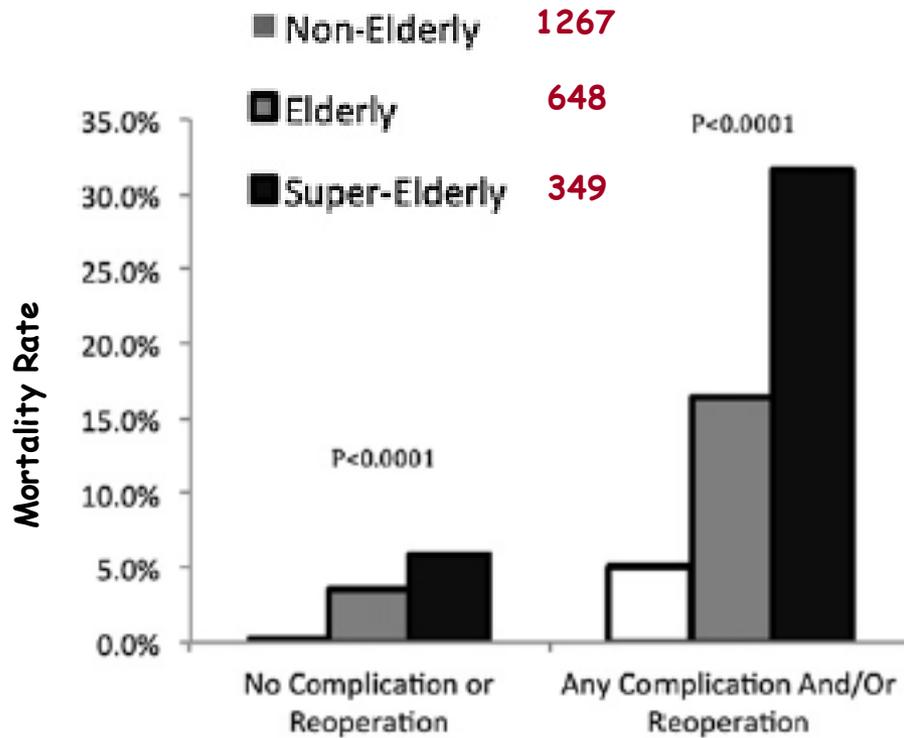
- 0.5% fewer deaths**
- 0.7% fewer colostomies**
- \$ 1,035 saved per patient**



Even in younger patients resulted in

- 0.1% fewer deaths**
- 2% fewer colostomies,**
- \$ 5,429 saved per patient**

Advanced age is an independent predictor for increased morbidity and mortality after emergent surgery for diverticulitis





2012

the **American Society of Colon and Rectal Surgeons** currently states that the “number of attacks of uncomplicated diverticulitis is not necessarily an overriding factor in defining the appropriateness of surgery.

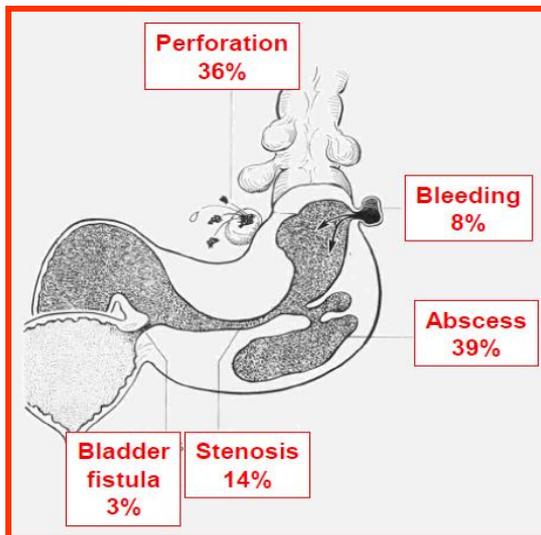
Recommendations should be influenced by the

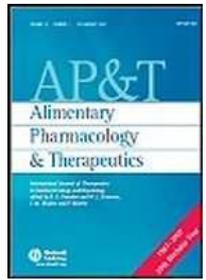
- age
- medical condition of the patient
- severity of the attacks
- frequency of the attacks
- presence of ongoing symptoms

Despite the large epidemiological and economic burden of diverticular disease (Pub Med Search n 17,916) there is little known about its management

Providers still lack reliable answers to common clinical questions

- ✓ Risk factors
- ✓ Disease Overlap
- ✓ Clinical management
- ✓ Surgery timing
- ✓ **Cancer Risk**
- ✓ Quality of life





2011

Diverticular disease and the risk of colon cancer - a population-based case-control study

J. Granlund*, T. Svensson†, F. Granath†, F. Hjern†, A. Ekborn†, P. Blomqvist† & P. T. Schmidt*

Colon cancer and Diverticular Disease share common characteristics

- Admission rates in the last decades
- Common in the Western world
- Incidences increase with advancing age.
- Diet (low fibre and high fat intake) and life style

Nationwide case-control study

41 037 colon cancer during 1992–2006 Swedish Cancer Register
Each case was matched with two control subjects.

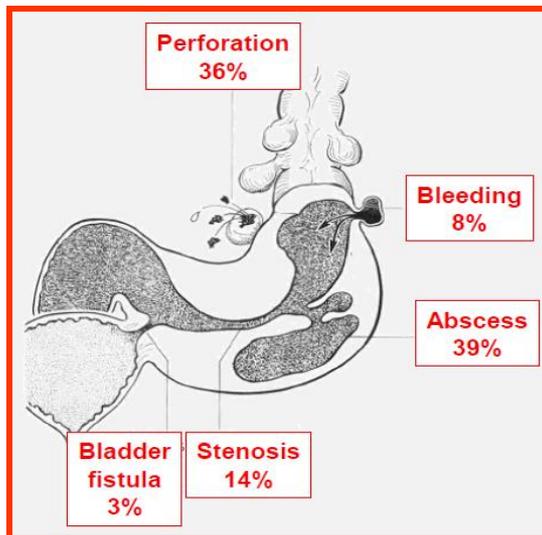
Diverticular disease does not increase the **risk** of colon cancer and does not affect colon cancer **mortality**

The increased risk of colon cancer within the first 12 months after diagnosing diverticular disease is due to surveillance/misclassification

Despite the large epidemiological and economic burden of diverticular disease (Pub Med Search n 17,916) there is little known about its management

Providers still lack reliable answers to common clinical questions

- ✓ Risk factors
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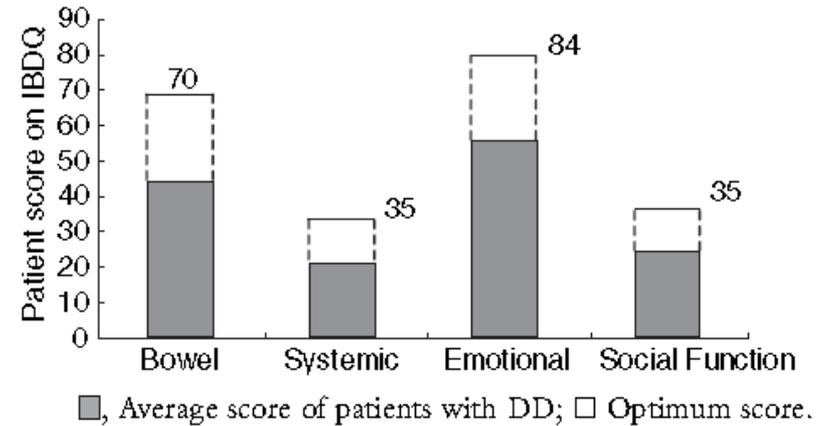




Diverticular disease has an impact on quality of life – results of a preliminary study

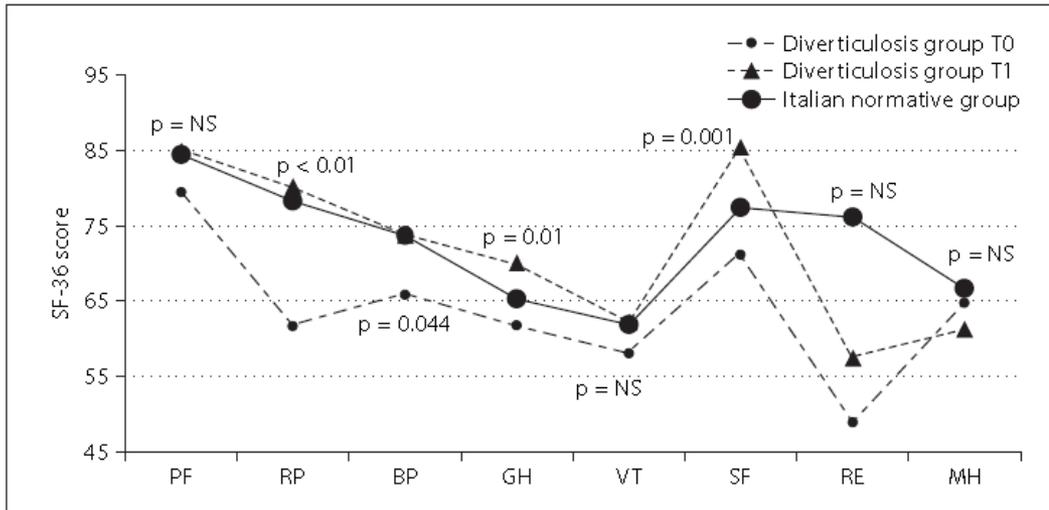
L. T. Bolster* and S. Papagrigoriadis†

Diverticular disease has a **NEGATIVE** impact on quality of life



Quality of Life in Uncomplicated Symptomatic Diverticular Disease: Is It Another Good Reason for Treatment?

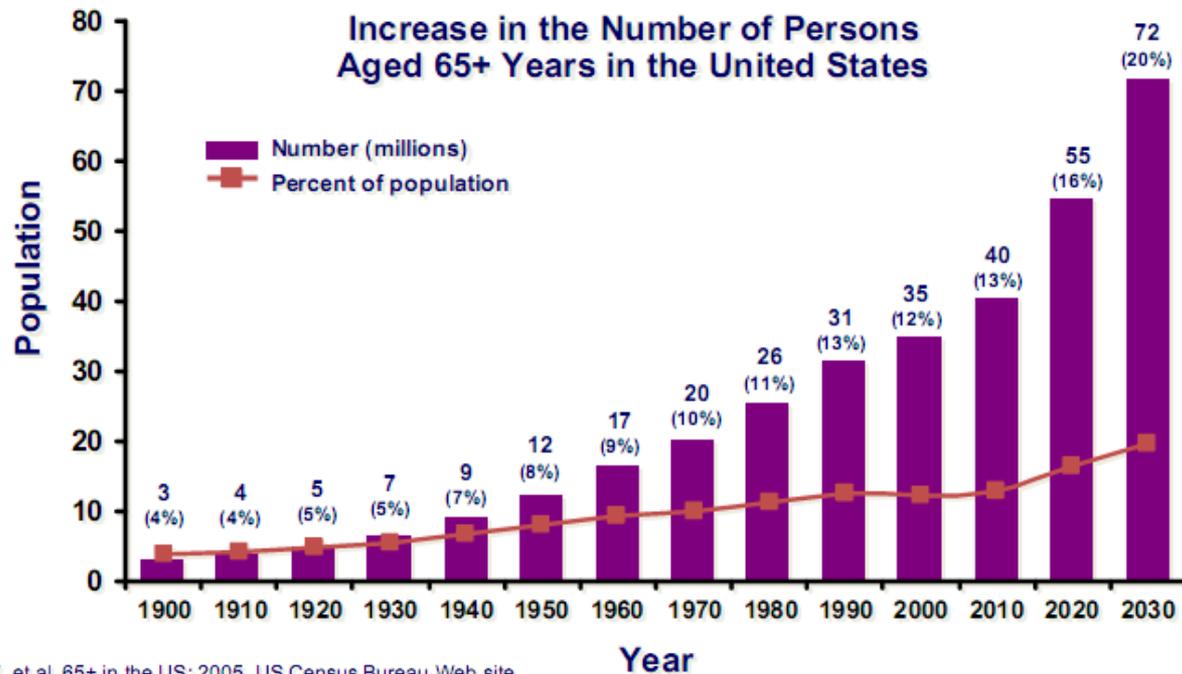
Giuseppe Comparato^a Libera Fanigliulo^a Giovanni Aragona^a
 Giulia M. Cavestro^a Lucas G. Cavallaro^a Gioacchino Leandro^b Alberto Pilbott^c
 Giorgio Nervi^d Paolo Soliani^a Mario Sianesi^a Angelo Franzé^d
 Francesco Di Mario^a



PF: physical functioning
RP: role limitation-physical
BP: bodily pain
GH: general health
VT: vitality
SF: social functioning
RE: role limitation-emotional
MH: mental health

CONCLUSION

Diverticular disease is a frequent disease in elderly...



.....Clinical management is often empirical

Thus.....prevention is better than cure

Also because currently guidelines are lacking



Thank you for the kind attention