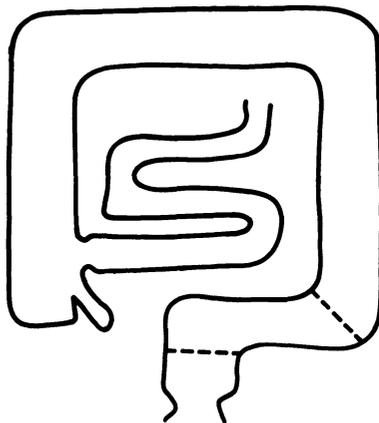


## PART III

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### COLON

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The colon offers psychophysiologicalists their greatest opportunity to make significant scientific and clinical contributions to gastroenterology: The colon is relatively easy to access for psychophysiological measurement, yet its physiology is poorly understood. As an example, the basic patterns of motility and electromyographic activity which mediate defecation and its disordered states—constipation and diarrhea—are still controversial. Moreover, irritable bowel syndrome and other functional disorders of the colon are prevalent in the population and constitute important clinical syndromes for which treatment is so far inadequate.

Irritable bowel syndrome is usually defined by the presence of abdominal pain and altered bowel habits in the absence of any physical findings adequate to explain the symptoms (cf. Chapter 14). It is an extremely common disorder; 8%–14% of adults report the presence of these symptoms within any given year (Whitehead, Winget, Fedoravicius, Wooley, & Blackwell, 1982; Thompson & Heaton, 1980), and it is estimated that 50%–75% will be affected at some point in their lifetime (Texter & Butler, 1975). The irritable bowel syndrome accounts for 40%–70% of consultations to gastroenterologists (Drossman, Powell, & Sessions, 1977) and for an estimated 115,000 hospital admissions per year (Mendeloff, 1979).

The childhood version of the irritable bowel syndrome, which is called recurrent abdominal pain (Stone & Barbero, 1970), occurs in approximately 14.4% of children aged 6–19 (Oster, 1972). Another colonic disorder believed to be mediated by abnormal colonic motility is diverticular disease, which is characterized by herniations of the intestinal lumen into the muscle layer of the colon creating pockets which may become infected. Diverticular disease is rare in early

adult life but increases with age and reaches a prevalence of about 40% in those aged 70 and older (Connell, 1974).

There is a well-documented association of irritable bowel syndrome with psychological disorders. Of these patients 75% to 90% have psychological scores in the abnormal range, consisting primarily of depression, anxiety, and neurotism (Hislop, 1971; Liss, Alpers, & Woodruff, 1973; Young, Alpers, Norland, & Woodruff, 1976). Moreover, approximately half of irritable bowel patients report a relationship between subjective stress and exacerbations of their symptoms, and about half recall an acute episode of stress immediately preceding the onset of their symptoms (Chaudhary & Truelove, 1962; Hislop, 1971; Waller & Misiewicz, 1969; Wangel & Deller, 1965). Recently we (Whitehead *et al.*, 1982) have called attention to the tendency of these patients to exhibit a pattern of chronic illness behavior characterized by multiple somatic complaints and a history of social rewards for illness.

The psychopathology associated with the irritable bowel syndrome is better understood than its pathophysiology. As Latimer shows in Chapter 13, there is a growing controversy over whether there is any unique physiological response which mediates these symptoms. Latimer argues that the pattern of colonic motility which has been reported in these patients is common to all neurotic patients including those without bowel symptoms. He suggests that many irritable bowel patients have colonic physiology and bowel habits which are within the normal range, and that they are simply neurotics who are preoccupied with normal bowel habits and normal bodily sensations which they exaggerate. Latimer suggests that such patients may constitute one of many types of patients who are currently lumped together as irritable bowel syndrome, and he suggests that there may be a different subgroup of patients with abnormal colonic physiology.

The strongest contender for a biological marker of the irritable bowel syndrome is an abnormal incidence of 3 cpm electromyographic activity in the colon. As Duthie points out in Chapter 12, two groups of investigators have reported that irritable bowel patients show a greater ratio of these electrophysiological events to faster 6 cpm electrical waves compared to normal subjects, and these electrophysiological differences do not disappear when the patient is asymptomatic. If true, this would suggest a biological basis for susceptibility to the symptoms of irritable bowel syndrome (IBS) for which a pharmacological solution might be found. However, other investigators have failed to find any differences in electromyographic activity between IBS patients and normals. Latimer reviews the evidence for and against this abnormal EMG hypothesis in Chapter 13.

A particularly exciting development for psychophysiologicalists is the skin surface measure of colonic electromyographic activity mentioned in Duthie's chapter. This measure is comparable to the electrogastrogram discussed in an earlier section which has stimulated so much psychophysiological investigation

of the stomach. The electrocolonogram requires additional validation, including studies using the signal analysis techniques described by Hölzl and Brühle in Chapter 5, but it has great potential both in scientific investigation and in biofeedback treatment applications.

Schuster reviews methods of recording colonic motility and compliance in Chapter 11 and describes the use of these procedures in the diagnosis of a variety of medical disorders. In Chapter 14, Schuster describes the application of psychophysiological measures to the biofeedback treatment of the irritable bowel syndrome. Other psychological methods of treatment found to be useful for patients with irritable bowel syndrome are discussed by Latimer in Chapter 13. These psychological treatments include systematic desensitization, cognitive behavior therapy, and behavior modification procedures to change the social consequences of symptomatic complaints. A more detailed discussion of these treatment procedures and the research data supporting their efficacy is given in Whitehead and Schuster (1981).

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