



# Healthcare Professionals Newsletter

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## RENEWED EMPHASIS ON THE NEED TO INCREASE FRUIT (AND VEGETABLE) INTAKES

**HEALTH PROFESSIONALS REGULARLY RECOMMEND EATING AT LEAST 400G OF FRUIT AND VEGETABLES A DAY**, based on the World Health Organisation report<sup>1</sup> and this is translated into national initiatives e.g. 5 A DAY in the UK<sup>2</sup>. However, this is really a **minimum to exceed** and various recommendations suggest optimal intakes should be closer to 600-800g<sup>3</sup>, with WHO (2003) actually stating 400-500g for CVD risk reduction and Aune 2017 recommending 600-800g. Worryingly the minimum targets are not reached in many countries e.g. Norway (259g/day), UK (279g/day), Ireland (350g/day) and Denmark (316g/day), and even in Mediterranean countries such as Italy and Greece, intakes sit below the optimum at 452g and 550g respectively (data excludes contribution made by juices)<sup>4,5,6</sup>.

Particularly shocking is that over 90% of the Western world do not consume enough **whole fruits and fibre**. Dreher (2018)<sup>7</sup> explored the health benefits (including GI health, weight management and diabetes) of adequate intakes of whole fruit, i.e. dried fruit, in a detailed narrative review, and concluded that *low whole fruit intake represents a potentially more serious global population health threat than previously recognized, especially in light of the emerging research on whole fruit and fruit fibre health benefits.*

Diets low in fruits are ranked surprisingly highly among risk factors (behavioural and dietary) for non-communicable diseases globally. Lim 2012<sup>8</sup> and Ezzati 2013<sup>9</sup> have developed detailed analyses that ranked diets low in fruits third highest for both death and burden of diseases (Ezzati 2013), behind high blood pressure and smoking/second-hand smoke, with an estimated five million deaths per year, and 4.2% disability adjusted life years (DALYs) being contributed to diets low in fruit (see table opposite).

A systematic review and meta-analysis (Aune *et al* 2017) exploring how consumption of fruit and vegetables (together and separately) affected risk of cardiovascular disease, total cancer and all-cause mortality indicates that a 10% reduction in all-cause mortality risk is likely for every 200g of fruit and vegetables

consumed daily; and 18% reduction in risk between high versus low consumers. Risk reductions were seen up to intakes of 800g/day for all-cause mortality and cardiovascular disease, and up to 600g for total cancer. Aune *et al* suggested that in 2013 there were 5.4 and 7.8 million premature deaths globally which may be attributable to daily fruit and vegetable intake below 500g and 800g respectively.



*"Three California prunes are equivalent to one portion of fruit<sup>10</sup> and is an easy and convenient way to boost your daily fruit and fibre intake."*

### Deaths and burden of disease due to risk factors

	Deaths		Burden of disease (% of global DALYs)
High blood pressure	9,400,000	High blood pressure	6.9
Smoking and secondhand smoke	6,300,000	Smoking and secondhand smoke	6.3
<b>Diets low in fruits</b>	<b>4,900,000</b>	<b>Diets low in fruits</b>	<b>4.2</b>
High BMI	3,400,000	Alcohol use	3.9
High blood glucose	3,400,000	High BMI	3.7
Physical inactivity & low physical activity	3,200,000	High blood glucose	3.6
High dietary salt	3,100,000	Physical inactivity & low physical activity	2.7
Alcohol use	2,700,000	High dietary salt	2.4
Diets low in nuts and seeds	2,500,000	Diets low in nuts and seeds	2.1
High serum cholesterol	2,000,000	High serum cholesterol	1.6
Diets low in vegetables	1,800,000	Diets low in whole grains	1.6
Diets low in whole grains	1,700,000	Diets low in vegetables	1.5
Diets low in fish and seafood	1,400,000	Diets low in fish and seafood	1.1

*Adapted from Ezzati M, Riboli E (2013) Behavioral and Dietary Risk Factors for Noncommunicable Diseases. N Engl J Med. 369; 954-64.*

**These studies show clear benefits to increasing our fruit intake due to their unique blend of low to moderate energy density, micronutrients, phytochemicals and fibre content which work together synergistically to reduce the risk of chronic diseases and premature mortality (Aune 2017, Dreher 2018).**

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# FIBRE

## Research interest around the microbiome and fashionable enthusiasm for 'low carb' in all guises has also led to heightened focus on fibre in the diet.

Like fruit and vegetable intakes, higher intakes of dietary fibre are associated with reduced risk for several non-communicable diseases, yet many do not reach ideal intakes. EFSA<sup>11</sup> recommend 25g fibre daily for 'normal laxation', and other European countries have made higher national recommendations eg 30g a day the UK<sup>12</sup>.

Globally we consume under 20g fibre per day<sup>13</sup>, and typically fibre intakes are only half what is ideal with only ~3% of men and ~6% of women regularly achieving recommendations (ie  $\geq 14$ g fibre/1000kcal) (Dreher 2018). Low fibre intakes contribute to constipation, which is thought to effect 16% of adults globally, and 33.5% of over 60s (Dreher 2018).

As part of informing 'the development of updated recommendations regarding carbohydrate intake' Professors Jim Mann and John Cummings, long standing fibre experts were commissioned by the World Health Organisation to review the evidence between carbohydrate quality (ie dietary

The benefits of fibre are supported by over 100 years of research into its chemistry, physical properties, physiology, and metabolic effects.

(Reynolds *et al* 2019)

fibre, whole grains or pulses, dietary glycaemic index, or glycaemic load) and human health (Reynolds *et al*, 2019). The review of 185 publications of prospective studies, included 135 million person-years and 58 clinical trials with 4635 adult participants; and explored the role of carbohydrate on mortality and incidence of a wide range of non-communicable diseases and their risk factors.

Results indicated significant risk reductions in high consumers of fibre for all-cause mortality (RR 0.85 (0.79–0.91)); CHD mortality (RR 0.69 (0.60–0.81)); CHD incidence (RR 0.76 (0.69–0.83)); type 2 diabetes (RR 0.84 (0.78–0.90)); colorectal cancer (RR 0.87 (0.79–0.95)); cancer mortality (RR 0.87 (0.79–0.95)); and changes to body weight (mean difference (kg)  $-0.37$  ( $-0.63$  to  $-0.11$ )). Similar results were seen with high versus low whole grain consumption, and no apparent differences were found between fibre from different food groups or between soluble and insoluble fibres. The results for the benefits of low glycaemic index foods and glycaemic

load were less consistent. The reviewers concluded that *higher intakes of dietary fibre or whole grains are associated with a reduction in the risk of mortality and incidence of a wide range of non-communicable diseases and their risk factors*. Overall these results further support the need to increase fibre intake globally. The researchers did not specifically explore the relationship between fruit and vegetable consumption and NCDs, deferring instead to the 2017 systematic review and meta-analyses by Aune *et al* (discussed above). They too note however that in addition to fibre, fruit and vegetables provide many other potentially protective nutrients.

Notable recommendations from the review were:

- replace refined grains with whole grains
- increase dietary fibre to at least 25–29g per day
- additional benefits likely to accrue with greater fibre intakes
- fruit and vegetables are also important contributors to dietary fibre intake

California prunes are a high fibre whole fruit containing 7.1g/100g (8-10 prunes), which is equivalent to around ¼ of daily recommendations.



## Perfect California prune and wholegrain porridge breakfast

For helping your fruit, fibre and winter-weather warming needs!

4 portions

12 mins prep time

10 mins cook time

### Ingredients

#### For the porridge:

- 200g California prunes chopped
- 180g porridge oats
- 600ml milk

#### Mixture for the topping:

Flax, pumpkin, sunflower seeds, nuts, chai seeds, goji berries, fresh berries, chopped fruit in season.

### Instructions

1. Place the porridge and milk in a large saucepan and place over a low heat.
2. Add the chopped California prunes and cook for approximately 10 minutes, adding more milk if needed.
3. Alternatively cook in the microwave.
4. Once cooked, divide the porridge into bowls and top with toppings of choice.



# PRUNES, THE GUT AND OUR MICROBIOME



## THE COMPOSITION OF OUR MICROBIOTA IS DETERMINED FROM A WIDE RANGE OF FACTORS INCLUDING OUR GENES, DIET, GENERAL HEALTH/DISEASE STATE, ENVIRONMENT, AGE AND BODY WEIGHT.

Research exploring the role of the gut microbiota in human metabolism and health, and how nutrients and phytochemicals work together to benefit health is now in full swing. Over 1,000 bacterial species have been identified in our gastrointestinal tracts, 160 species of which are found in the gut of any individual<sup>14</sup>. Whilst the main function of our microbiome is to digest nutrients that are not broken down in the small bowel e.g. fibre (Reynolds 2019), its influence on human health is now known to go much farther, from vitamin synthesis, protection against pathogens, immune system function and gut-brain interactions.

Whole fruits, including dried fruit, work as prebiotics due to their fibre and polyphenol content, stimulating the growth of healthy bacteria to 'promote and maintain a health colonic microbiome' (Dreher 2018). Soluble fibre in our diets helps to retain fluid, stimulates bacteria production and soften stools; and insoluble

fibre provides bulk and stimulate the bowels – thus making stools easier to pass.

Dreher reviewed the evidence around gastrointestinal health and confirmed that fibre rich fruit is beneficial for protecting against constipation with two servings/day.

Professor Kevin Whelan's team at Kings College London<sup>15</sup> supplemented the regular diets of 120 low fibre consumers (15g/d) with infrequent bowel movements (3–6 stools/week) for 4 weeks with 0g, 80g or 120g prunes and 300ml water, and in addition to a significant increase in stool weight and stool frequency in the prune group, bifidobacterial levels increased compared to baseline ( $p=0.046$ ). Bifidobacteria is the beneficial bacteria that prebiotics act to increase. Lever *et al* stated that the 'effect of prunes on the microbiota may be mediated by dietary fibre (e.g. pectin), sorbitol or phenolic compounds but more research is required to confirm this finding and to establish which prune components are responsible for the increase in bifidobacteria.'

California prunes contain both soluble (3.9g/100g) and insoluble (3.2g/100g) fibres and are the only natural, whole fruit to achieve an authorised health claim in Europe: Prunes contribute to normal bowel function when 100g are eaten daily.

## STOP PRESS: California prunes and Sustainability



With supporters and critics of the EAT Lancet report<sup>16</sup> on a new Planetary Health Diet, who can argue with their main recommendation that half your plate should be made up of fruit and vegetables?! If we're going to achieve this and consider sustainability issues, eating seasonally has to be key. Dried fruit such as prunes help bridge the seasonality gap providing convenient fruit and fibre fillers all year round. Read all about how the California prune farmers and wider industry are addressing sustainability issues, from farm to plate, in our next CPB HCP newsletter.

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