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Recommended viewing & reading

Most of the queries were tackled by the speakers during their presentations. Most relating to Prof. Mark Messina's presentation 'Human Research and the Safety of Soyfoods' which is available to view on demand.

Watch the Alpro Foundation & Fuji Part 2 of 3 on-demand

Two must read in-depth scientific reviews of published literature

Soya foods with naturally occurring isoflavones are safe

An extensive technical review was recently carried out by Messina et al. This 63-page review discusses the findings of 417 clinical and observational studies, systematic reviews and meta-analyses investigating the effect of soya foods or soya isoflavone supplements on human endocrine outcomes.

The extensive review looked at the evidence for soya and isoflavones consumption on: thyroid function, male and female hormones and fertility, breast and endometrial cancer, endometriosis and uterine fibroids as well as puberty onset and impact on maternal and foetal health.

Messina M, Blanco Mejia S, Cassidy A, et al. [Neither soyfoods nor isoflavones warrant classification as endocrine disruptors: a technical review of the observational and clinical data](#). Crit Rev Food Sci Nutr. 2022;62(21):5824-5885. doi: 10.1080/10408398.2021.1895054

Soya & health: the ultimate guide for health professionals (2022)

An in-depth review of higher quality publications including systematic reviews, meta-analysis and large cohort studies as well as opinions of independent health organisations.

This 20-page publication with over 550 references reviews all aspects of soya and its health implications, tackling misguided controversies on the way.

For any health professional wishing to have a concise reference guide to soya, this is a must have.

Messina M, Duncan A, Messina V, et al. [The health effects of soya: A reference guide for health professionals](#). Front Nutr. 2022;9:970364. doi: 10.3389/fnut.2022.970364

QUESTIONS & ANSWERS

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Soya isoflavones in the endocrine system

20th September 2022

Isoflavone actions

Isoflavone content of soya foods

Soya foods are the main dietary source of the isoflavones – genistein, daidzein and glycitein.

The isoflavone content of soya foods and drinks is related to the protein content. There are approximately 3-4mg isoflavones per g soya protein. However, isoflavones can also be reduced during processing for example with soya protein isolates/powders

Isoflavone vs lignans, coumestans, flavanoids?

Q How do isoflavones compare with other groups of phytoestrogens (prenylflavonoids, coumestans and lignans) in different aspects?

Each class or type of phytoestrogen will have a different molecular structure, be absorbed and metabolized differently, and bind to estrogen receptors with different selectivity and potency. For this reason, one cannot generalize about the effects of phytoestrogens. Isoflavones have been studied more than other phytoestrogens.

Action

Q Are isoflavones oestrogens? How can they act like oestrogen and then not act like oestrogen? How would you respond to patients who are worried about soya and estrogen content?

Although isoflavones have some similarities, they are not identical to oestrogen in their chemical structure nor with regard to their biological activity and this has been demonstrated in clinical studies. Isoflavones can have a weak oestrogen-like effect, however, their potency is much lower than human oestrogen and they have a greater affinity to ER-beta unlike human oestrogen which has equal affinity to both ERs alpha and beta. ER-alpha is associated with exerting cell proliferation whilst ER-beta is anti-proliferating. In addition, isoflavones do possess non-oestrogen related benefits. Controversies have been fuelled by findings from animal (rat) and case studies with imbalanced diets. It is now well established that rats metabolise isoflavones very differently and animal findings cannot be extrapolated to humans - this is opinion of multiple health agencies including the European Food Safety Authority, the American Institute for Cancer Research and the World Cancer Research Fund.

Equol producers

Q How do we know if a person produces Equol?

Equol production is determined by measuring equol levels in the serum and/or urine.

Organic vs GM soya

Q Is there any difference in the isoflavones found in soya, which is genetically modified and organic soya, which is not modified?

No. The types of isoflavones are exactly the same as is the amount. In fermented foods, more of the isoflavones are present as aglycones, meaning a sugar molecule is not attached to the parent isoflavones. The duration of fermentation determines the extent to which the isoflavone glycosides (genistin, daidzin, glycitin) are converted into isoflavone aglycones (genistein, daidzein, glycitein). Aglycone isoflavones may be absorbed more quickly which may lead to higher peak levels of isoflavones in the serum although total absorption may not differ between isoflavone glycosides and aglycones. Some evidence suggests daidzein (aglycone) is more likely than daidzin (glycoside) to be converted into equol. It is not clear whether this difference is physiologically relevant.

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Q What about GM soya beans? Can they be as nutritious? Have studies been carried out?

Studies show the nutrient composition of non-GM and GM soya beans is similar.

Soya and medication interaction

Q Any interactions found between soya and any medications?

Like other fibre foods, herbs, dietary supplements and medication, soya foods can reduce the absorption of levothyroxine and other drugs used to treat hypothyroidism. There is no need to avoid soya foods, and it is recommended that soya, alongside other foods, supplements and medication likely to interfere, is taken 30-60 mins either side of taking the medication. Please see the excellent review of the evidence as recommended above.

Q Women with oestrogen receptor breast cancer taking Tamoxifen are usually advised by their oncologist to avoid soya for fear that it may reduce the effectiveness of tamoxifen and may also stimulate oestrogen receptor positive breast cancer. Is there evidence for this?

The evidence is too conflicting and limited to provide a definitive answer. From various types of studies, in vitro, animal, observational and clinical, there is evidence that soya has no effect on, enhances and inhibits the efficacy of tamoxifen.

Breast cancer

Q Are isoflavones oestrogens? How can they act like oestrogen and then not act like oestrogen? **Q** What about soya protein isolates which contain a high amount of isoflavones. Is there an upper limit of isoflavone intake in this form for patients at risk of breast cancer?

The American Institute for Cancer Research (AICR) and the World Cancer Research Fund (WCRF) have confirmed that any negative associations between soya/isoflavones and breast cancer have come from animal (rat) and in vitro research which cannot be extrapolated to, nor have they been replicated in humans. Rat metabolism is very different to human isoflavone metabolism. The human evidence indicates absolutely no risk to human health and potentially a protective effect for women at high risk and breast cancer survivors. The AICR and WCRF see no issue with including 1-2 servings of soya foods and dairy alternatives as part of a varied balanced diet and lifestyle for reducing breast cancer risk.

As well as the recommended references above:

1. Boutas I, Kontogeorgi A, Dimitrakakis C, et al. Soya Isoflavones and Breast Cancer Risk: A Meta-analysis. *In Vivo*. 2022 Mar-Apr;36(2):556-562. doi: 10.21873/invivo.12737
2. AICR. Soya: intake does not increase risk for breast cancer survivors. AICR 2021. <https://www.aicr.org/cancer-prevention/food-facts/soya/>
3. AICR. Soya and cancer: myths and misconceptions. AICR 2019. <https://www.aicr.org/resources/blog/soya-and-cancer-myths-and-misconceptions/>
4. WCRF. Could soya products affect my risk of cancer. WCRF 2017. <https://www.wcrf-uk.org/our-blog/could-soya-products-affect-my-risk-of-cancer/>.

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Q For women who have had oestrogen-mediated breast cancer, can they still consume soya products? **Q** Is soya a safe alternative for women who have been diagnosed with breast cancer, both ER/PR positive and ER/PR negative subtypes?

There have been several prospective studies looking at soya intake in breast cancer survivors in Asian and western populations. The studies indicate reductions in risk of breast cancer mortality/recurrence in these groups, with hazard ratios of 0.7 to 0.8. The reductions were seen in both ER+ and ER- cancers.

1. Magee & Rowland review: Magee PJ & Rowland I. Soya products in the management of breast cancer. *Curr Opin Clin Nutr Metab Care*. 2012 Nov;15(6):586-91. doi: 10.1097/MCO.0b013e328359156f
2. AICR Food Facts. Soya: intake does not increase risk for breast cancer survivors. AICR 2021. <https://www.aicr.org/cancer-prevention/food-facts/soya/>

Q Women with oestrogen receptor breast cancer taking Tamoxifen are usually advised by their oncologist to avoid soya for fear that it may reduce the effectiveness of tamoxifen and may also stimulate oestrogen receptor positive breast cancer. Is there evidence for this?

The evidence is too conflicting and limited to provide a definitive answer. From various types of studies, in vitro, animal, observational and clinical, there is evidence that soya has no effect on, enhances and inhibits the efficacy of tamoxifen.

Q Does soya have any influence on TNBC risk/prevention? (as opposed to hormone sensitive BC).

Soya has been associated with a lower risk of estrogen receptor negative breast cancer and long-term pre-diagnosis soya intake is associated with increased expression of tumour suppressors and decreased expression of oncogenes, especially cell growth-related genes, in breast tumour tissues from women with TNBC. There is some evidence from in vitro and rodent studies that the isoflavone genistein may protect against TNBC.

Q Is the level of benefit of soya in reducing breast cancer risk the same for women in minority ethnic groups?

It is not clear what is meant by minority ethnic groups but the ethnicities that have primarily been studied in regard to soya and breast cancer prevention, are Japanese, Chinese and Caucasian. There is no reason to think the results in these groups does not apply to others.

Children & infants

Q Soya as staple food for young children, is any difference between boys and girls?

Soya foods when consumed as part of balanced and varied diet, will provide an excellent source of protein for both boys and girls and no negative side effects have been shown. There is no evidence for feminisation for boys and for girls, there is some evidence to indicate that consumption of 1-2 servings of soya foods or drinks during childhood and/or adolescence may provide protection against breast cancer in later life. Isoflavone exposure early in life appears to cause breast cells in the developing breast to become permanently less likely to be transformed into cancer cells.

The above two reviews will provide a more in-depth exploration.

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Q Can you comment on the data/risk on isoflavone/soya consumption below the age of 1 year?

Exposure to isoflavones in infants would come in the form of soya infant formulae (SIF). SIF promotes normal growth and development according to the American Academy of Pediatrics although there is debate on this topic. Research published over the past decade from the Beginnings Study has shown few differences between infants fed cow's milk and infants fed SIF.

Soya foods when consumed as part of balanced and varied diet, will provide an excellent source of protein for both boys and girls and no negative side effects have been shown. There is no evidence for feminisation of boys and with regard to girls, there is some evidence to indicate that consumption of 1-2 servings of soya foods or drinks during childhood and/or adolescence may provide protection against breast cancer in later life. Isoflavone exposure early in life appears to cause breast cells in the developing breast to become permanently less likely to be transformed into cancer cells.

Other health associations

Men's health

Q Are the benefits of isoflavones limited to women (breast cancer, menopause, menstruation) or are their benefits for men when considering the endocrine system too? Should we advise men to consume soya products every day, or is this less important?

The advice for men and women is that soya foods and drinks can form part of a healthy balanced and environmentally sustainable diet. They are perfectly safe, and they are an excellent high quality protein food, naturally low in saturated fat and have a much lower environmental footprint than animal proteins. There is good evidence that soya consumption at around 25g soya protein per day (2 servings) lowers serum LDL cholesterol which is a major modifiable risk factor for the number one global killer, cardiovascular disease. There is also preliminary evidence to indicate potential protection against prostate cancer, but more research is needed.

Please see recommended reading.

Feminisation of men

Q Are you please able to address 'feminisation of young boys' with soya consumption?

As presented by Mark Messina (<https://mynutriweb.com/soya-isoflavones-in-the-endocrine-system/>), the evidence is clear that consumption of soya foods and soya alternatives to dairy as part of a varied balanced diet and lifestyle has no impact on endocrine function and does not cause feminization in boys or indeed produce any other negative health outcomes.

Fertility

Q Do isoflavones have role in fertility?

The extensive review of the clinical literature, and as presented by Mark Messina, soya foods and drink or isoflavone consumption has no negative impact on male or female fertility outcomes. Soya foods and soya dairy alternatives can be consumed as part of a healthy balanced diet by all individuals without concern. Whether soya can improve fertility levels, more research is definitely needed in this area.

Please see recommended reading above.

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Menopause

Q Evidence for soya and the menopause

[Mark Messina's presentation](#) covers the evidence for this topic. In summary, consumptions of soya foods and drinks providing approximately 50mg isoflavones daily (1-2 servings), can help reduce severity and frequency of hot flushes. More importantly, it is well established that risk of heart disease and elevated serum cholesterol levels is exacerbated when a woman enters the menopause. Consuming around 2 servings of soya foods and soya alternative to dairy daily to provide approximately 25g soya protein, will help reduce serum LDL cholesterol levels which is one of the major risk factors. Some research also indicates that isoflavones may also help with endothelial fluidity.

Please see recommended reading above.

Q 50mg isoflavones for hot flushes? Where is the evidence

Please see [Mark Messina's presentation](#) and recommended reading and answer above as well as the meta-analysis by Taku et al.: Taku K, Melby MK, Kronenberg F et al. Extracted or synthesized soybean isoflavones reduce menopausal hot flash frequency and severity: systematic review and meta-analysis of randomized controlled trials. *Menopause* 2012;19(7):776-90. DOI: 10.1097/gme.0b013e3182410159

Q Isoflavones vs hormone replacement therapy. Soya isoflavone dietary supplementation to post-menopausal women who are taking oestradiol trans dermally as hormone replacement therapy. Will this affect the effectiveness of oestradiol supplementation ?

We think oestrogen therapy will have a much stronger impact on vasomotor symptoms - and would mitigate the effect of soya isoflavones. However, for those wishing to try, we would strongly recommend consumption of soya foods and drinks rather than isoflavone supplements. The reason for this is because of the overall beneficial nutrition and environmental profile. Soya foods and alternatives to dairy are rich in high quality protein, are naturally low in saturated fat, and can provide fibre. Additionally, soya has been shown to lower serum cholesterol levels which is important in menopausal women whose cholesterol levels increase alongside a greater risk of cardiovascular disease. Isoflavones may also help towards improving endothelial function.

Q Can high levels of soya consumption cause bleeding after menopause?

One report described a postmenopausal woman taking isoflavone supplements who experienced vaginal spotting. However, there have been many clinical studies involving women of all stages of life without bleeding being a reported side effect.

Fibroids

Q Any relationship between soya and fibroids?

There is limited evidence to be able to draw any conclusions on the impact of soya isoflavones and the impact on fibroids.

Please see review recommended above *Neither soyfoods nor isoflavones warrant classification as endocrine disruptors: a technical review of the observational and clinical data.*

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Endometriosis

Q Explain the known implications of dietary intake of soya in relation to oestrogen sensitive individuals i.e., women with endometriosis

The evidence is clear that consuming soya foods as part of varied balanced diet and lifestyle is perfectly safe for all women.

Please see recommended reading above.

Menstrual cycle

Q Impact of soya on menstrual cycle?

The impact of soya intake on menstrual cycle length (MCL) has not been studied for 15 years but soya consumption has been associated with an increase in MCL by one day, but ovulation is not prevented. The increased MCL is not expected to affect fertility in women.

Please see recommended reading above.

Q Do (Japanese) women have longer menstrual cycle lengths vs US/UK women?

No information was identified to answer this question but in a US study, women of Japanese ethnicity had similar menstrual cycle lengths as Caucasian Americans.

Cognitive function

Q Do isoflavones improve cognition?

There is some evidence to indicate a beneficial effect of isoflavones on cognitive function, however, more research is needed to draw definite conclusions. This supports the general advice that 1-2 daily servings of soya foods and drinks can be encouraged as part of varied and balanced diet and lifestyle.

Please see recommended reading above.

Ultra-processed

Soya alternatives to dairy

Q I'm considering the form of soya products, such as highly processed soya and their effects on overall health. Can you share your thoughts on it? Can we consider soya chunks and tofu as processed food?

Mark Messina covers this in his presentation – please see the recording. Judging the health implications of food purely on its level of processing is misleading. Yes, soya foods such as soya drinks and chunks would be classified by the NOVA system as ultra-processed, but this is at odds with both the nutritional, health and environmental benefits. Many health organisations including the American Dietetic Association and the British Dietetic Association have emphasised that the level of processing has to be considered alongside the nutritional value of the food. Mark Messina has recently looked into soya meat alternatives and soya drinks and their classification as UPFs - has gone through all the arguments found that soya foods and drinks are no more hyperpalatable than their meat and dairy alternatives, they are naturally low in sat fat and cholesterol free, the mainstream varieties have same calcium levels and comparable bioavailability as dairy, most also have vitamin D added and B vitamins. Additionally, using Poore and Nemecek datasets, all plant-based drinks including soya have a significantly lower environmental footprint compared to dairy - for GHGe, land use, water use, eutrophication and acidification.

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Please see:

1. Messina M, Sievenpiper JL, Williamson P, et al. Perspective: Soya-based meat and dairy alternatives, despite classification as ultra-processed foods, deliver high-quality nutrition on par with unprocessed or minimally processed animal-based counterparts. *Adv Nutr.* 2022 Mar 23;nmac026. doi: 10.1093/advances/nmac026. Online ahead of print.
2. Gibney MJ, Forde G, Mullally D, et al. ASN Commentary: Ultra-processed foods in human health: a critical appraisal. *Am J Clin Nutr.* 2017;106:717–24.
3. British Dietetic Association (BDA). Position statement: Processed food. BDA Jan 2021. Accessed May 2022. <https://www.bda.uk.com/resource/processed-food.html>

Other – soya / isoflavones

Western population

Q Disadvantage of isoflavones' on the health of Westerner (non-Asian)?

The extensive review of the evidence as presented by Mark Messina [<https://mynutriweb.com/soya-isoflavones-in-the-endocrine-system/>] demonstrates that there is no disadvantage to consuming soya foods and soya dairy alternatives as part of a varied balanced diet and lifestyle in Western or Asian women. Soya foods and dairy alternatives have a beneficial nutrition profile in line with current dietary recommendations as well as being superior to their animal equivalents for environmental burden. Soya is an excellent high quality plant protein and naturally low in saturated fat. Soya foods can also contribute significantly to fibre intakes - something that most nations need to improve on. Consumption of soya foods and dairy alternatives can also contribute to reduction in serum LDL cholesterol levels, which when elevated are a primary risk factor to the biggest global killer, cardiovascular disease. And finally for women, soya foods consumption, as part of a varied balanced diet and lifestyle, can help reduce hot flushes during the menopause and may potentially reduce risk of breast cancer.

Please refer to Mark Messina's presentation (see link above) and recommended reviews.

Overconsumption and side effects

Q Are there any side effects of consuming too much soya products?

A varied balanced diet and lifestyle is the key to optimal health. This means consuming foods in the correct proportions as recommended by national and international dietary guidelines. Therefore, consuming any individual food in excess is not recommended as it will not give a balance of all nutrients and will displace other foods providing different nutrients needed by the body. Mark Messina's presentation [<https://mynutriweb.com/soya-isoflavones-in-the-endocrine-system/>] clearly demonstrates that including 1-2 daily servings of soya foods as part of varied balanced diet and lifestyle is perfectly safe, offers variety and can offer health benefits e.g. 2 daily servings of soya foods and soya dairy alternatives daily can help with lowering serum cholesterol levels (~25g soya protein) and may help alleviate hot flushes during the menopause.

Please refer to Mark Messina's presentation (see link above) and recommended reviews.

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Soya alternatives to dairy

Q What's your opinion about popular soya milk?

Fortified soya alternatives to milk and yogurt are an excellent component of a healthy balanced diet. The mainstream versions with added calcium, vitamin D and B vitamins (especially vitamin B12) offer an excellent alternative to dairy. Protein content and quality is the same as dairy, most mainstreams are fortified with calcium to similar quantities and comparable bioavailability as dairy, they are naturally low in saturated fat and can provide some essential fatty acids. An additional benefit is that soya alternatives to milk have a significantly lower environmental footprint across all environmental benchmarks: carbon emissions, land use, water use, acidification and eutrophication. From a behaviour change angle, soya and other plant-based drinks offer an easy switch for consumer towards a more plant-based sustainable dietary pattern.

Cooking and digestibility

Q How does cooking and processing effect protein and digestibility

Heating soybeans is necessary to inactivate protease inhibitors, which can inhibit protein digestion. Research shows that the digestibility of soya protein from many different types of soya foods, from concentrated sources of soya protein to traditional Asian soya foods, is quite good.

Miso

Q Would be good to get clarity on other soya products like miso. It appears they still show benefit even though the protein intake would be much lower than soya milk or beans for example. I thought isoflavone content is directly related to protein content so I'm a bit confused.?

Isoflavones are related to protein content 3-4mg per g protein. However, isoflavones can also be removed/lost during processing for example with soya protein isolates/powders. With regard to Miso, each 15g (tbsp) serving will provide approximately 2g protein and therefore 6-8mg isoflavones. Soya foods with a higher protein content such as soya dairy alternatives, tofu, edamame beans and soya mince will automatically provide higher isoflavone levels.

How to consume enough soya protein/isoflavones

Q Edamame bean is a young soya bean, is it lower in isoflavones? But the soya bean doesn't seem to be used much in UK cooking. Any advice on increasing soya consumption?

Edamame beans are now readily available in the UK in in the frozen sections. Isoflavone content is related to the protein level of the soya food (3-4mg isoflavones per g protein). An average serving of edamame beans ~85g will provide 14g protein which equates to 42-56mg isoflavones which is a significant amount. From a practical aspect, 1-2 servings of any soya foods and dairy alternatives as part of a varied and balanced diet should be encouraged. It depends on individual preferences. Edamame beans are great in salads, stews as a side vegetable and even to make dips with. Fortified soya drinks are a great easy switch for dairy milk on cereal, in cooking and used in tea and coffee. Soya alternatives to yogurt are also readily available and easy to incorporate with cereal, in place of sour cream and creme fresh, in smoothies and a great snack. Soya mince is another great easy swap for recipes. Soya burgers and sausages - the nutrition label needs to be carefully checked as other added ingredients may result in a poor nutrition profile for saturated fat and salt. Tofu in a variety of formats and although some cooking knowledge is needed, can be incorporated into many dishes.

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Where is it grown

Q Where is most soya grown?

The important thing to note is that the majority of soya grown in the Amazon is in fact used for animal feed in particular poultry and pigs. Over 90% of soya production for human consumption in Europe comes from North America, Europe or Asia.

Vitamin K, Kiwi Fruit, Bone Health

Q What is the benefit of kiwi fruit to bone health? How does vitamin K impact on bone health? Should we take Vitamin K supplements? Doesn't gut flora provide enough vitamin K?

Vitamin K is one of the many nutrients essential for bone health as well as blood clotting. With regard to bone health, vitamin K is involved with the carboxylation of osteocalcin which is critical for bone mineralisation and turnover. There are two main forms of vitamin K: phylloquinone (K1) and a group of menaquinones (K2) with varying side chain lengths of MK-4 to MK-13. Vitamin K1 (phylloquinone) is the primary dietary source found in green leafy vegetables, some vegetable oils and some fruit like avocados and kiwi fruit. Adequate vitamin K2 (menaquinones) is produced in the gut via the action of gut flora, but modest amounts can also be found in a few animal-based foods (meat, dairy and eggs) and fermented foods especially natto - fermented soya beans. Clinical evidence using mainly MK-4 (vitamin K2) pharmacological dose supplements, in Japanese menopausal women have shown improved bone mineral density and reduced incidence of fractures. However, other studies and meta-analysis show mixed results. Japan and other Asian countries do use pharmacological doses of MK-4 in the treatment of osteoporosis. However, many authors have emphasised that it is difficult to isolate the benefits of one nutrient for bone health, as bone mineral density and osteoporosis is depending on multiple dietary and lifestyle factors. Of importance is to follow a varied and balanced diet that provides all key bone nutrients including protein, calcium, vitamin D, vitamin K, magnesium and zinc as well as weight bearing exercises, avoiding excess alcohol and cessation of smoking.

Recommended reading: Mott A, Bradley T, Wright K, et al. Effect of vitamin K on bone mineral density and fractures in adults: an updated systematic review and meta-analysis of randomised controlled trials. *Osteoporos Int.* 2019;30(8):1543-1559. doi: 10.1007/s00198-019-04949-0

Q Should we be recommending Vit K2 supplements?

A number of Asian countries standardly use pharmacological MK-4 dose supplements for the treatment of osteoporosis. In the West, this is not a common intervention for osteoporosis, and it is felt that more evidence is needed and there is a need to focus on putting vitamin K into context and ensure all critical nutrients and lifestyle factors are managed within the diet e.g. adequate protein intakes (especially in older populations where protein requirements are increased), calcium, vitamin D, magnesium, zinc. Additionally, cessation of smoking and moderating alcohol consumption is also important as well as inclusion of resistance training at least twice a week. With osteoporosis, the fundamental factor is optimised bone mineral density prior to older age and ensuring this occurs in earlier years - up to the age of 25.

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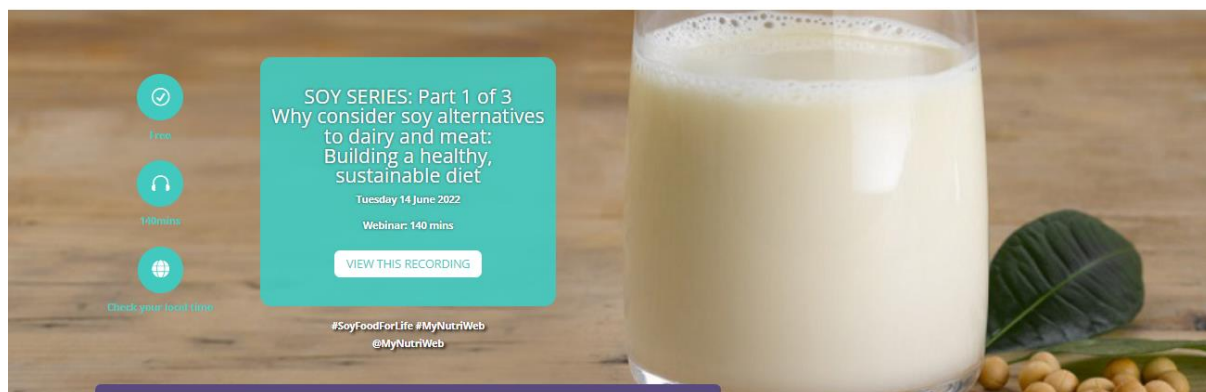
Soya isoflavones in the endocrine system

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Watch the presentations – Soya Series: Part 2 of 3

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Watch the four expert speakers present the evidence on:

- Human research and the safety of soya foods: [Prof. Mark Messina](#)
- Soya and Women's Health: A focus on bone and fat metabolism: [Prof. Yoshiko Ishimi](#)
- Evidence on Soya foods and breast cancer risk: [Prof. Sabine Ellinger](#)
- Benefits of isoflavones beyond the estrogen receptors: [Prof. Hirofumi Tachibana](#)

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