

Stjörnupopp

Evaluation on the wholesomeness of popcorn Report

Stjörnupopp was evaluated according to the following factors:

- Fat and fat composition
- Fibers
- Nutrition

The project was done in the following way:

- The processing line at Iðnmark was inspected.
- The raw materials were examined. Information's from the suppliers of the oil and the corn were evaluated.
- The nutritional value of the popcorn was calculated.
- Information's about the nutritional value of different types of microwave popcorn and other snack products on the market were collected. Labels and information's from Danish and us databanks were inspected.
- Articles and researches recommended by The public health institute of Iceland were read.

Results:

Raw materials used for the popcorn:

Non GMO maize

Unhydrogenised coconut oil and transfat free sunflower oil

Spreydried Cheddar cheese

All information's about the raw material, including the nutritional value were received from the suppliers. Some nutritional measurements were done on the products.

The processing:

The maize is popped with air at 200°C.

Coconut oil is blended with salt, warmed up to 30°C and sprayed over the popcorn. If cheddar cheese is used it is also blended with the oil and salt before the spraying.

Finally the popcorn is packed into 100 g bags.

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Table 1a) Nutritional value in Stjörnupopp (normal)

Nutritional value in 100 g popped popcorn	
Energy : KJ	2013
Kcal	481
Protein (g)	10
Carbohydrate (g)	54
Fat (g)	25
There of saturated fat	20
Monounsaturated fat	3
Polyunsaturated fat	2
Trans fatty acid	<1
Fibre	10
Sodium (g)	1,0

Table 1b) Nutritional value in Stjörnupopp (with cheese)

Nutritional value in 100 g popped popcorn	
Energy : KJ	2057
Kcal	492
Protein (g)	12
Carbohydrate (g)	50
Fat (g)	27
There of saturated fat	22
Monounsaturated fat	3
Polyunsaturated fat	2
Trans fatty acid	<1
Fibre	9
Sodium (g)	1

Table 2: Comparison on Stjörnupopp and microwaveable popcorn

Type	Energy (kcal)	Protein (g)	Carbohydrate (g)	Fat (g)	Saturated fat (g)	Trans fatty acid (g)	Fibre (g)	Sodium (g)
Orville (*)	515	6	49	31	7	?	11	1,4
Newman's (**)	567	7	53	37	7	?	10	1
Pop Secret (***)	540	8	53	33	?	?	?	?
Stjörnupopp (Normal)	481	10	54	25	20	<1	10	1
Stjörnupopp (cheese)	492	12	50	27	22	<1	9	1

(*) www.orville.com

(**) package

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(***) package

Table 3: Comparison on Stjörnupopp and other snack products, particularly with regards of fat and sugars:

Products	Energy (kcal)	Fat (g)	Saturated fat (g)	Trans fatty acid (g)	Fibre (g)	Sodium (g)
Chocolate biscuit (1)	498	26	13	?	4 g	28
Maarud cheese pop (2)	525	32	15	?	1	0
Doritos Nachos cheese (3)	476	27	12	?	4	0
Pringles original (4)	556	38	13	?	3	0
Peanuts (5)	576	49	10	?	8	0
Chocolate (6)	564	33	23	?	1	50
Prins Polo (7)	540	32	12	?	1	35
Microwavable popcorn (8)	541	33	7	?	12	0
Stjörnupopp (Normal)	481	25	20	<1	10	0
Stjörnupopp(cheese)	492	27	22	<1	9	0

All figures are for 100 g

- (1) Icelandic nutritional tables
- (2) On package
- (3) On package
- (4) On package
- (5) Icelandic nutritional tables
- (6) Icelandic nutritional tables
- (7) Icelandic nutritional tables
- (8) Average from three types of microwavable popcorn

It is pointed out that no information on trans fatty acid were found in food labelling on microwavable popcorn, but information on fatty acid in Icelandic food were found in report from the TRANSFAIR project done 1995 -1996. In the report under the part on snacks:

Popcorn ready (like Stjörnupopp): 0,1 g trans fatty acid in 100 g of fat.

Popcorn, microwavable (type not known): 34,8 g trans fatty acid in 100 g of fat.

Like you can see in table 3, Stjörnupopp contains less energy in 100 g compared to six other types of products. The same is for the fat.

Stjörnupopp contains fairly high proportion of saturated fat or 20 g in 100 g compared to 7 g in microwavable popcorn. But on the other hand Stjörnupopp does not contain any trans fatty acid, but the compared products contain trans fatty acid (see data from Iðnmark and information here after). Stjörnupopp contains lots of fibre like other types of popcorns and according to food labelling regulation in Iceland it is acceptable to label with the words "high in fibre" if product contains over 7 g of fibre in 100 g.

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The public health institute of Iceland recommends daily intake of 25 g of fibre. In one bag of Stjörnupopp there is 40% of recommended daily intake.

At last there is no added sugar in the popcorn which often is much of in other snack products like cookies, cakes and chocolate.

Trans fat:

Trans fatty acid is found in many types of food like cookies, cakes, snacks, microwavable popcorn, take away food and butter. The reason is that the baking butter which is used in the production of all these products often contains lots of trans fatty acid. Research show that trans fatty acid increases risk on heart- and vain disease much more than intake of saturation fat. The reason is that trans fat increase the level of triglyceride and LDL (bad cholesterol) like saturated fat but it also decreases the level of HDL (good cholesterol). There is also thought to increase the risk on diabetics type 2.

There is almost certain that product contains trans fatty acid if saturated fat is listed in the nutritional label of the product and if there is stated "partially hydrogenated oil" in the ingredients list.

The Food and Drug Administration in United State (FDA) has made regulation which entered into force 1. January 2006. According to the regulation food producers will have to label the quantity of trans fatty acid in nutritional labels on food packaging. It is not certain if or when same kind of rules will be made in Europe but Denmark has insisted the European Union (EU) will take action in this matter and food producers will have to lower the value of trans fatty acid in food or remove them.

First of June last year laws entered into force in Denmark on trans fatty acid in food oil, spread and margarine. It aims to ensure that products will not contain more than 2 g of trans fatty acid in 100 g of final product. This covers also margarine which is used in cookies, cakes and others.

Many data indicates that the amount of trans fatty acid in hydrogenated oils which are used in microwavable popcorn is 20 g, which is the same as 6-7 g of trans fatty acid in 100 g of popcorn.

See here: <http://www.ust.is/Matvaeli/Matvaelaefrettir/2003/09/29>

Saturated fat:

Saturated fat is in little amount in plant oil that has not been hydrogenated, exception is coconut oil and palm oil. Scientific researches indicate that saturated fat can increase the blood fat. On the other hand recognized researches has also shown that coconut oil and specially the virgin coconut oil which can have antioxidant quality like A vitamin, E vitamin, C vitamin, selen, copper and zink which is positive.

It is difficult to claim anything about health or unhealthy of the coconut oil yet.

Those who accept naturopathy have said that pure fat like coconut fat and butter is better choice than more processed fat types like some fat reduced spears and partially hydrogenated oil. Maybe they have some point there but it dose not changes the fact

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that there are no researches indicating that saturation fat increases LDL cholesterol in the blood.

The Public health institute of Iceland recommends that energy intake is less than 10% from saturated fatty acids, which means that person who consumes 2000 calories a day can have 200 calories from saturated fat, that is 22 g which is the slight more than in on bag of Stjörnupopp.

Compilation

According to what has been said before and those documents which have been collected in the making of this report I fully recommend with stjörnupopp as a good choice of snack. It is high in fibre, with no sugar, no trans fatty acid and it contains less fat and energy compared to comparable products. It is highlighted that popcorn is a snack and should be consumed reasonable and as a part of a healthy and good diet.

At last it is pointed out that both children and teenagers will have to increase fibre in the diet about 5-7 g a day. By eating Stjörnupopp 3-4 times a week it increases the fibre for 5-7 g a day. In rewards they have a sugar free snack which doesn't contain any Trans fatty acid.

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