



CarbChoice

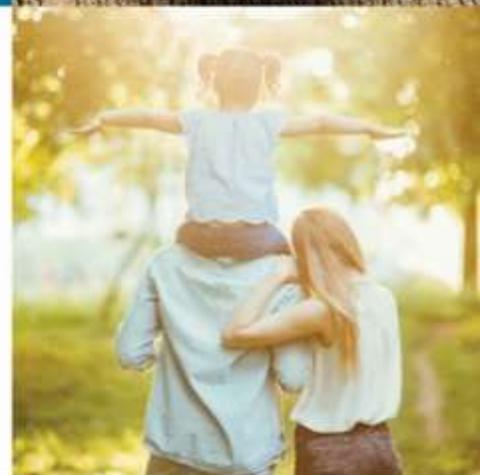
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Discover your path to

WELLNESS NUTRITION EXERCISE

INTRODUCTION
YOUR RESULTS
DIET
LIFESTYLE
SUPPORT

The image shows the front of a CarbChoice product box. The top half is blue with the CarbChoice logo and a list of topics: INTRODUCTION, YOUR RESULTS, DIET, LIFESTYLE, and SUPPORT. The bottom half is white with a blue-tinted image of hands mixing ingredients in a bowl. The text 'Discover your path to' is above the main title 'WELLNESS NUTRITION EXERCISE'.



dna

FITGENES, DNA TEST KIT
Practitioner kit

The image shows the 'dna' logo in a white circle on a dark purple background. Below the logo, it says 'FITGENES, DNA TEST KIT Practitioner kit'.



Health & Wellbeing

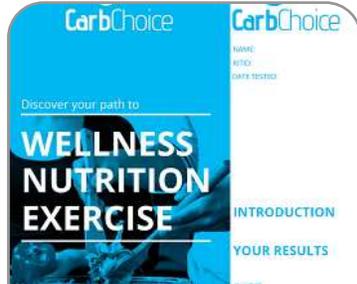
The image shows a brochure for 'Health & Wellbeing'. It features a purple heart icon with a DNA helix inside, and several hexagonal images showing people in various health-related activities. The fitgenes logo is visible in the bottom left corner.

The CarbChoice® Report



CarbChoice may only be supplied by Fitgenes Accredited Practitioners or any Nutriscience practitioner who has completed Fitgenes CarbChoice® short training module. See final page for details.

Patient Consult and Process



Awareness and Suitability

- **Patient goals and needs**
- Education about genetics and applications
- Suitability of CarbChoice for their goals
- **Select DNA report, if suitable**

DNA Sample and Billing

- Enter patient in Pracware
- Allocate kit and select CarbChoice (billing event)
- Patient sample
 - **Performed in clinic or Fitgenes can send a kit**
- Consent form if in clinic

Test Performed

- Kit posted to Fitgenes
- Results available **3-4 weeks after sample received by Fitgenes***
- Email notification to practitioner

- (* whole process can be up to 5 weeks in periods of slow postage e.g. Christmas, COVID)

Retrieve Report From Pracware

- Re-review patient goals
- Review goals in light of report
- Key area(s) of focus
- Treatment plan and dietary recommendations, interventions
- Book follow-up appointment to receive report

The CarbChoice[®] Report

Congratulations on making the choice to improve your health and wellbeing!

Your CarbChoice report is designed to guide you on your journey toward better long-term health and wellbeing. You can use this information to prepare a personalised diet, exercise and wellness plan that supports your individual needs for making the right choices around starch carbohydrates.

What you will learn from your CarbChoice profile

Your potential genetic predisposition to processing starch carbohydrates.

How much starchy carbohydrate might be suitable for you.

Foods and ingredients to include as part of your daily diet supporting optimal starch carbohydrate processing.

Foods to avoid or minimise to support your weight management goals and nutritional needs.

Foods to increase your amylase levels to support better starch carbohydrate processing.

The CarbChoice[®] Score (AMY1 Copy Number Variation)

CarbChoice

Your AMY1 Gene Score tells you exactly how tolerant your digestive system is to starch. If you have a high processing range, it means you are better adapted to a high-starch diet. If you sit in a lower processing range, it means you are less starch-tolerant. CarbChoice reports on the activity of your AMY1 gene and how well this stimulates the production of amylase in your saliva when you chew your food.



Low Activity Processing

Individuals who are low processing should decrease their intake of starch carbohydrate and consider changing to higher fibre carbohydrates. High starch carbohydrate intake is associated with a greater risk of obesity, insulin resistance and diabetes.



Moderate Activity Processing

Individuals with moderate processing ability can tolerate more starch carbohydrate such as grains. High starch carbohydrate intake is associated with a higher risk of weight management issues and related problems.



Higher Activity Processing

Individuals with high range processing ability can tolerate a higher level of starch carbohydrate intake, such as grains which has less impact on weight management and insulin levels.

They have a lower risk of obesity.

Personalised to the Individual

Men and Women's Versions –

Dietary Advice and Exercise Differences Based on Score



CarbChoice **HIGH Starch Foods**

Following is a selection of grains and cereals that are high in starch.

Grain

CarbChoice **LOW Starch Foods**

Low starch foods can be included in your diet to support a well-balanced meal plan. As a guide, these low starch foods are included as starch in grams per 100g (3.5-oz) serving (or 100 grams).

Fruit

CarbChoice **No Starch Foods**

Fruits – No Starch

CarbChoice **Amylase Inhibitors**

Amylase Inhibitors

While salivary amylase can be increased, there are several plants which contain polyphenols which may inhibit or decrease salivary amylase and, hence, affect your carbohydrate metabolism.

These include foods and beverages such as:

Foods and beverages inhibiting Amylase

STRAWBERRY	BLUEBERRY	BLACKBERRY	PLUM	BEAN
COFFEE	SOY BEAN	RED CABBAGE	BLACK TEA	RED WINE

**Foods are listed in partnership with one or two other low starch foods.*

CarbChoice **Exercise**

While research has used only treadmill and cycling as the exercise modality, there is no doubt that other types of cardio both indoors and outdoors will also increase salivary amylase.

CYCLING

ROWING

Exercise Int

VO_{2max} or maximal O₂ is measured in l/min. The faster you use your resting HR, the higher your VO_{2max}.

Calculating VO_{2max} Man: using the following formula:

$$VO_{2max} = 15.3 \times (HR_{max} - HR_{rest}) \times 0.82$$

Or by simply using the equivalent to 82% of VO_{2max}.

The easiest way to get a correct max heart rate is to use a heart rate monitor.

If you haven't exercised in a while, you should start with a low intensity level and gradually increase it.

Exercise

Personalised to the Individual

Men and Women's Versions –

Dietary Advice and Exercise Differences Based on Score



CarbChoice **HIGH Starch Foods**

Following is a selection of grains and cereals that are high in starch.

Grain

CarbChoice **LOW Starch Foods**

Low starch foods can be included in your diet to support a well-balanced meal plan. As a guide, these low starch foods are included as starch in grams per 100g (3.5-oz) starch per 100 grams.

Fruit

Apple (green) 10g starch
Blueberries 1g starch
Coconut (dried) 2g starch
Pineapple 10g starch
Bananas 21g starch
Cantaloupe 1g starch
Kiwi 1g starch
Lemon 1g starch
Lime 1g starch
Lemon-Lime 1g starch
Mango 10g starch
Peach 10g starch
Pineapple 10g starch
Raspberries 1g starch
Strawberries 1g starch
Tangerine 10g starch
Watermelon 1g starch

Vegetables

Broccoli 1g starch
Brussels sprouts 1g starch
Cauliflower 1g starch
Cucumber 1g starch
Green beans 1g starch
Kale 1g starch
Lettuce 1g starch
Spinach 1g starch
Zucchini 1g starch

Other LOW Starch

Almonds 1g starch
Cashews 1g starch
Coconut oil 1g starch
Flaxseed 1g starch
Hemp seeds 1g starch
Lentils 1g starch
Peanut butter 1g starch
Peanuts 1g starch
Sesame seeds 1g starch
Sunflower seeds 1g starch
Tahini 1g starch
Walnuts 1g starch

No Starch Foods

Fruits - No Starch

Apple	Banana	Cherry	Cherry	Orange	Peach	Pineapple
Raspberry	Strawberry	Watermelon	Apple	Orange	Pineapple	Pineapple
Blueberry	Cantaloupe	Kiwi	Lemon	Lime	Lemon-Lime	Mango
Coconut (dried)	Cucumber	Green beans	Kale	Lettuce	Lemon-Lime	Mango
Coconut oil	Green beans	Kale	Lettuce	Lemon-Lime	Mango	Pineapple
Flaxseed	Kale	Lettuce	Lemon-Lime	Mango	Pineapple	Pineapple
Hemp seeds	Lemon-Lime	Mango	Pineapple	Pineapple	Pineapple	Pineapple
Lentils	Mango	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple
Peanut butter	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple
Peanuts	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple
Sesame seeds	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple
Sunflower seeds	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple
Tahini	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple
Walnuts	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple	Pineapple

CarbChoice **Exercise**

While research has used only treadmill and cycles as the exercise modality, there is no doubt that other types of cardio both indoors and outdoors will also increase salivary amylase.

CYCLING

As a low range processor exercise is important to increase salivary amylase up to five times but is heavily dependent on the intensity.

ROWING

Exercise must be maximum effort (Wobush 2014).
Research has on salivary amylase.

Exercise Int

VO₂ max or maximal is 1 minute. The faster you use the following formula:

Using your resting heart rate:

$$VO_{2max} = 15.3 \times (220 - \text{Age})$$

$$MHR = \text{Maximum heart rate}$$

$$RHR = \text{Resting heart rate}$$

Do by simply using the equivalent to 82% of VO₂ max.

The easiest way to do is correct max heart rate.

If you haven't exercised in some time, start with lower intensity levels.

Exercise

Sample Report: CarbChoice® Score



Classified in this CarbChoice report as the population group most likely to have poor capacity to process starchy carbohydrates.

**CarbChoice®
Score of 2
(AMY1 CNV = 2)**

Your lower processing capacity means:

- You may not produce as much of the enzyme in your saliva needed to break down the starch found in carbohydrates.
- You may have reduced tolerance of high-starch diets.
- You may be at a higher risk of, and predisposition to, obesity.
- You may have reduced glycaemic control resulting in decreased glucose or blood sugar control.
- You may have an increased risk of metabolic abnormalities which occur when the normal process of metabolism is or becomes disrupted.
- You may be at increased risk of obesity compared to individuals with a higher processing result.
- You may be at higher risk of insulin resistance and diabetes if you are consuming a high starch carbohydrate diet.

Sample Report: CarbChoice[®] Interventions (Score = 2)



Classified in this CarbChoice report as the population group most likely to have poor capacity to process starchy carbohydrates.

Dietary Recommendations

Your low starch carbohydrate processing capacity means you should aim to avoid refined and processed starchy carbohydrates in your everyday diet.

Trial a low carbohydrate diet providing 25% of overall daily energy intake (approx. 165g for men made up of low starch options).

Lifestyle Recommendations

You should undertake moderate to high-intensity physical activity. Before starting this type of exercise, you should discuss this with your fitness or health practitioner, especially if suffering from any medical condition or injury.

Sample Report: CarbChoice[®] Interventions (Score = 2)



Take Home Messages for Low Range Processing

1. Replace high starch foods in your diet with no or low starch foods (see your report for details) or resistant starch wholefoods.
2. Consume foods or drinks that increase amylase production before any high starch meals, i.e. citric acid drinks, acidic fruits (see report for details).
3. Consume higher starch meals towards the end of the day or after 30 minutes of moderate to high-intensity exercise.
4. Avoid smoking and drinking tea or alcohol before meals.
5. Fill up on vegetables from the no starch and low starch lists (see report for details) to assist with weight loss.
6. Use the table of suggested food swaps to help start making appropriate food choices for your AMY1 CNV result.

Avoid starch / carbohydrates

Increase production of α -amylase

Minimise dietary impact of starches

Avoid α -amylase inhibitors

Minimise dietary impact of starches

Minimise dietary impact of starches

Three Key Ways to Achieve Your Goals

1. Reduce or actively manage your food choices and quantities.
2. Improve your amylase production.
3. Recognise that lifestyle factors such as exercise can contribute to good health and weight management.

CarbChoice® Intervention Strategy (Especially Low-Medium CNV)

Increase production of α -amylase

**Avoid α -amylase inhibitors -
especially just before a meal**

Minimise dietary impact of starches



CarbChoice® Dietary Interventions

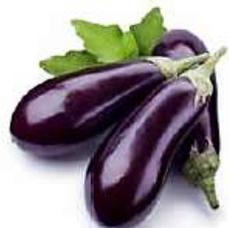
Increase Production of α -amylase / Avoid α -amylase Inhibitors

Foods containing citric acid have been shown to increase your production of amylase which helps break down starch carbohydrates.

Foods containing Citric Acid g/100g

				
SUNDRIED TOMATOES 5.4g/100	LEMON 4.5g/100	LIMES 4.3g/100	PASSIFRUIT PULP 3.5g/100	RASPBERRIES 2.4g
				
TOMATO PASTE salted 1.6g/100	APRICOTS 1.4g/100	GUAVA 1.4g/100	TANGELO 1.4g/100	MANI 1.3g

Foods and beverages inhibiting Amylase

				
STRAWBERRIES	BLUEBERRIES	BLACKCURRANTS	PUMPKIN	BEANS
				
CORN	EGG PLANT	RED CABBAGE	BLACK TEA	RED WINE

*Berries are best consumed with no or low starch food.

CarbChoice® Dietary Interventions

Minimise Dietary Impact of Starches



Increase / substitute foods with no or limited starch / carbohydrate

Add in resistant starches

Minimise or avoid higher starch foods

CarbChoice® Dietary Interventions

Minimise Dietary Impact of Starches

Fruits - No Starch



Enjoy any of these NO starch vegetable foods

Enjoy any of these NO starch

Enjoy any of these NO starch

Enjoy any of these NO starch

Fruit



Vegetables



Other LOW Starch



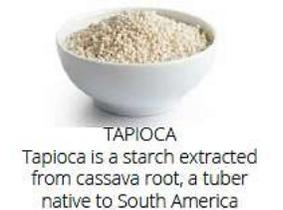
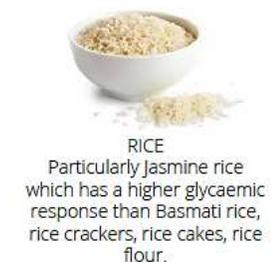
Fruits



Vegetables



Grains and Cereals



CarbChoice® Dietary Interventions

Food Swaps and Menu Suggestions Suited to CC Score

Suggested Food Swaps for Low Range Processing
CarbChoice

Breakfast

Toasted muesli / flake cereal + Soy Milk 1 piece Rye toast + 1/4 avocado + tomato (acidic) + egg

Lunch

Stir fry Asian noodle Four bean, spinach, cucumber, tomato, feta salad with chicken.

Dinner

Rice and corn 1 x chat potato with skin on and stir fried Asian greens; capsicum, bok choy, carrots, chilli, mushrooms

BREAKFAST

Smoked salmon egg omelette with spinach, tomato & avocado salsa



Ingredients
2 or 3 medium eggs
30 - 50g smoked salmon
Tsp Olive oil
1 tomato
½ avocado
Dash of lemon juice

Recipe
Whisk eggs, Chop tomato, avocado and mix gently together
Squeeze lemon juice over and a small dash of olive oil.

SNACKS

Nutrient Boosting Vegie Juic Berry Energy Boost Smoothie



Nutrient boosting Vegie Juice
3 x carrots
1 bunch of celery
Kiwi fruit
Apple
5cm slice of ginger
Squeeze of lemon juice

Juice or blend (add more vegetables to your desired taste)

Berry energy boost Smoothie
1 ½ cups of frozen berries of choice
1 Cup of plant-based milk of choice (Almond, Soy, Coconut)
1 Banana
Dash of honey or maple syrup
Sprinkle of cinnamon

Blend until smooth and creamy.

LUNCH

Turkey San Choy Bow



Ingredients
150g Turkey mince
3 lettuce leaves
1 cup of frozen vegetables of choice
Dash of soy sauce, fish sauce, lime juice

Recipe
Pan fry turkey mince, add in vegetables and stir fry for a few minutes
Add in soy, fish sauce and lime juice to taste.
Fill lettuce cups

DINNERS

Steak and Vegetables / Fish and Vegetables With a side Salad



Ingredients
Choice of steak 90g or fish 120g
1 ½ cups of vegetables of choice either fresh or frozen
Green salad

Recipe
Pan fry choice of meat or fish in a dash of olive oil
Steam vegetables
Prepare a small green salad

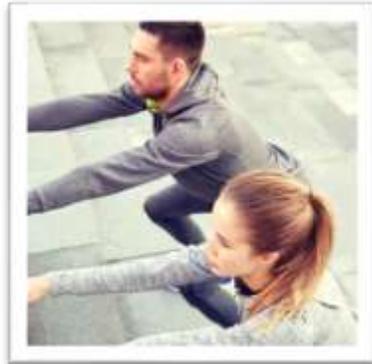
Lifestyle Interventions

From our CarbChoice® Score =2 sample report

You have a low range AMY1 CNV; there are lifestyle choices which can maintain or increase your levels. The following offers some guidance.

Salivary amylase is influenced by lifestyle factors such as:

- Exercise and sport.
- Chewing your food.
- Satiety
- Food perception
- Conditions in which you eat your food.



Exercise

- Can increase amylase activity by up to 500%
- Amylase concentrations are increased for up to 2.5 hours
- Interval training (fast or vigorous exercise with rest periods) may be more effective than using a treadmill

Patient should be cautioned and consider if exercise is appropriate for them

Chewing food

- Increases saliva production

Alcoholic drinks

- Alcohol decreases the activity of amylase activity: avoid alcohol especially before high starch carbohydrate meals, for best results
- However very few alcoholic beverages contain large amounts of starch, but many have high quantities of other carbohydrates

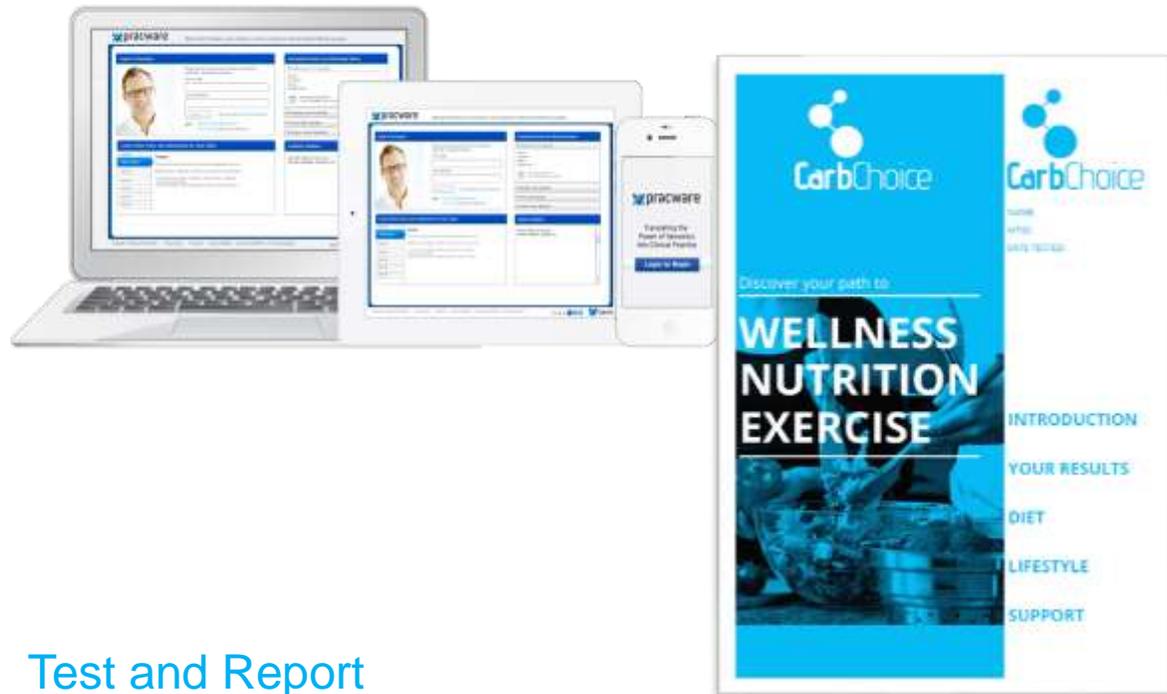
Smoking

- 1 cigarette reduces salivary amylase by ~44%

Lifestyle / Mood

- Significantly higher salivary amylase levels have been observed for individuals reporting a positive mood and calmness

Follow-Up Consult



Test and Report

Practitioner notified that results are available in Pracware



Follow-up Consult – in person / Zoom

Patients can be offered a tailored program and develop long-term relationship

CarbChoice® in Your Practice

Fitgenes Accredited Practitioner

- Any existing Fitgenes Accredited Practitioner who has completed the Accreditation Workshop modules* already has complimentary access to CarbChoice® training and may offer CarbChoice® to their patients, along with any other Fitgenes DNA Report.
- Contact Fitgenes on enquiries@fitgenes.com for access

Any practitioner client of Nutrisearch

- Any practitioner who is not a Fitgenes Accredited Practitioner may offer CarbChoice® to their patients after completion of the *short* CarbChoice® training modules.
- There is no charge for CarbChoice® training modules but the practitioner must have ordered and received their own, paid CarbChoice® Report prior to commencing.

Contact Nutrisearch for more information on accreditation and pricing

Email: info@nutrisearch.co.nz

Phone: 0800 88 44 33

CarbChoice

Discover your path to

**WELLNESS
NUTRITION
EXERCISE**

CarbChoice

NAME:
KITID:
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dna

FITGENES. DNA TEST KIT
Droptainer kit



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