dr. GenatiX

تقرير نتائج تحاليل د.جيناتكس

احتمالية الإصابة بالأمراض المزمنة

لا يعتبر هذا التقرير تشخيصاً لأي حالة مرضية. جميع النتائج العلمية المدرجة في هذا التقرير توضح إذا كانت الطفرات الجينية المرتبطة بالأمراض موجودة ومدى قابلية الإصابة بها حسب الأبحاث العلمية. لا يمكن استبدال أي نصيحة أو تشخيص طبي حصلت عليه من طبيبك المعالج بأي من النتائج الموجودة في هذا التقرير. مركز بندرجين للتحاليل الطبية ليس مسؤولاً عن أي إجراء يقوم العميل باتخاذه بناءً على النتائج المدرجة في هذا التقرير.

كيف تقرأ وتستفيد من المعلومات التي يتضمنها تقرير نتائج تحليل

احتمالية الإصابة بالأمراض المزمنة

صحة الإنسان تعتمد على عمليات معقدة جداً ترتبط ارتباطاً وثيقاً بين سماته الجينية والعوامل البيئية المتغيرة (نمط الحياة، البرنامج الغذائي، الرياضة والحركة، الضغط النفسي، الإرهاق والإجهاد، إلخ).

يجب معرفة أن هذه المقدمة هي خاصة بك، لذلك تمت كتابة ملخص التقرير بلغة سهلة يستطيع الفرد الغير متخصص طبياً في فهمها واستيعاب محتواها. ولكن يجب أن تعلم أيضاً بأن باقي التقرير مقدم للأخصائي الصحي، والذي بدوره يستطيع استخلاص محتويات التقرير على شكل برنامج صحي مخصص لك أنت فقط، اعتماداً على تحليل سماتك الجينية التي قام مركز بندرجين الطبي باستكشافها لك.

١) كلمة "محتمل" تم استخدامها بكثرة في هذ التقرير. ماذا تعني؟

يعلم كثير من الناس أن ارتفاع معدل الكوليسترول مثلاً يرتبط بالإصابة بأمراض القلب وانسداد الشرايين، ومع ذلك نجد أن بعض الناس ممن يعانون من ارتفاع للكوليسترول ولكنهم لا يعانون من أي مشاكل قلبية أو وعائية. أيضاً، التدخين يؤدي إلى سرطان الرئة، ولكن ليس مع الجميع. لهذا، يجب أن نعلم أن بعض السمات الجينية لدى الإنسان تؤدي غالباً إلى صفات معينة، ولكن ليس دائماً. لذلك كلمة "محتمل" في هذا التقرير تعني أن السمة الجينية ستؤدي غالباً إلى النتيجة المتوقعة، ولكن يمكن لبعض العوامل المختلفة تغيير ذلك.

٢) كيف أعرف ما هي السمات الوراثية الخاص بي أنا لكل بند من بنود التحليل الذي قمت به؟

لقد قمنا بوضع علامة (✔) أمام التفسير الذي ينطبق على حالتك. وطبعاً قمنا بعرض بقية الاحتمالات حتى يمكنك معرفة ماهي النتائج المتوقعة لكل بند، وكذلك لتتمكن من مقارنة نتائجك الشخصية مع النتائج "المتوسطة" علمياً.

٣) كيف توصلتم لهذه النتائج؟

لقد قمنا بتحليل الحمض النووي الخاص بك وربط نتائج المتغيرات (الطفرات) الجينية الموجودة لك مع نتائج أبحاث علمية منشورة في قواعد البيانات الطبية العالمية المتخصصة في تحليل سلسلة الحمض النووي (DNA). يمكنك الاطلاع على قائمة بالمراجع العلمية الموجودة على موقعنا الإلكتروني للتعرف أكثر عن الدراسات العلمية والطبية في مجال الفحص الجيني والوراثي.

٤) بعض الجينات تكون ذات استدلال مفيد والبعض الآخر ذات استدلال غير مفيد لنفس الصفة. كيف يمكن تفسير ذلك؟

يحتوي الحمض النووي للإنسان على حوالي ٢٠-٣٠ ألف جين. معظم الخصائص والوظائف العضوية والحيوية في جسم الإنسان يتم تنظيمها عن طريق مجموعة من الجينات (وليس جين واحد فقط لكل وظيفة). لذلك كانت بعض السمات الجينية ذات استدلال مفيد لصفة معينة، وجينات أخرى ذات استدلال غير مفيد لذات الصفة. أيضاً يجب أن تعلم أن ليس كل جين يقوم بالتأثير على الصفة بشكل قياسي، فبعض السمات الجينية تؤثر بشكل كبير وبعض السمات الجينية تؤثر بشكل أقل.

٥) بعض العبارات في التقرير تم تلوينها بالأحمر وبعضها تم تلوينها بالأخضر، لماذا؟

السمات الجينية التي يعتبر لها استدلال مفيد وإيجابي فيما يتعلق بالفائدة الغذائية الخاصة بك قد تم تعليمها بالأخضر. وكذلك السمات الجينية التي يعتبر لها استدلال غير مفيد وسلبي فيما يتعلق بالفائدة الغذائية الخاصة بك قد تم تعليمها بالأحمر. باقي الاستدلالات التي يتم ربطها علمياً (إما إيجاباً أو سلباً) تم تعليمها بالأسود.

نتائج فحص السمات الوراثية الخاصة بكم
احتمالية الإصابة بالأمراض المزمنة

السمة الجينية	نتيجتك	النتائج المحتملة
السمنة المفرطة: تعتبر أكثر من ٦٠% من مسببات السمنة المفرطة ذات طابع وراثي قوي. حيث يكون الشخص الذي يحمل تلك السمات الجينية أكثر عرضة للسمنة خصوصاً إذا اقترن ذلك بنظام غذائي عشوائي مع انقطاع عن الرياضة المستمرة.		انخفاض احتمالية الإصابة بالسمنة المفرطة
	✔	متوسط احتمالية الإصابة بالسمنة المفرطة
		ارتفاع احتمالية الإصابة بالسمنة المفرطة
داء السكري-٢: خطر الإصابة بداء السكري من النوع ٢ يرتبط جزئياً مع الطبيعة الجينية والوراثية للفرد. وقد تم التعرف على عدد من الجينات التي ترتبط الطفرات فيها مع ارتفاع خطر الإصابة بمرض السكر. لذلك يمكن للفرد المعرض للمرض تعديل نمط حياته لتخفيف خطر الإصابة بالمرض أو تأخير الإصابة به.	✔	انخفاض احتمالية الإصابة بالسكر
		متوسط احتمالية الإصابة بالسكر
		ارتفاع احتمالية الإصابة بالسكر
أمراض القلب الوراثية: إن أمراض القلب الوراثية هي إحدى أهم مسببات الوفاة عالمياً حيث يكون بعض الأشخاص الذين يحملون سمات جينية محددة أكثر عرضة من غيرهم لخطر الإصابة بهذه الأمراض، ويمكن تخفيض خطر الإصابة بأمراض القلب بتعديل نمط الحياة من الناحيتين الغذائية والرياضية.		انخفاض احتمالية الإصابة بأمراض القلب الوراثية
		متوسط احتمالية الإصابة بأمراض القلب الوراثية
	✔	ارتفاع احتمالية الإصابة بأمراض القلب الوراثية
ارتفاع ضغط الدم: هو أحد الأمراض المزمنة والمستوطنة عالمياً حيث تكون الأعراض المؤدية والمصاحبة للمرض خصوصاً في البدايات خفية تماماً، ويمكن تخفيض خطر الإصابة بمرض الضغط بتعديل نمط الحياة من الناحيتين الغذائية والرياضية.	✔	انخفاض احتمالية الإصابة بالضغط
		متوسط احتمالية الإصابة بالضغط
		ارتفاع احتمالية الإصابة بالضغط
السكتة الدماغية: هي عملية انقطاع الدم بشكل جزئي أو كلي عن منطقة معينة في الدماغ بسبب جلطة داخل إحدى الشعيرات الدموية فيه. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة احتمالية الإصابة بتلك الجلطات.	✔	انخفاض احتمالية الإصابة بالسكتة الدماغية
		متوسط احتمالية الإصابة بالسكتة الدماغية
		ارتفاع احتمالية الإصابة بالسكتة الدماغية
التخثر والجلطات :التخثر هو عملية تجلط الدم داخل الأوعية الدموية. حيث تزيد عند بعض الأشخاص الذين يحملون سمات جينية محددة نسبة الإصابة بالجلطات.	✔	انخفاض احتمالية الإصابة بالتخثر والجلطات
		متوسط احتمالية الإصابة بالتخثر والجلطات
		ارتفاع احتمالية الإصابة بالتخثر والجلطات
الرجفان الأذيني: الرجفان الأذيني هو حالة مرضية تصيب عضلة القلب تجعلها تنقبض بشكل عشوائي ودون انتظام، حيث تزيد عند بعض الأشخاص الذين يحملون سمات جينية محددة نسبة الإصابة بالرجفان.	✔	انخفاض احتمالية الإصابة بالرجفان الأذيني
		متوسط احتمالية الإصابة بالرجفان الأذيني
		ارتفاع احتمالية الإصابة بالرجفان الأذيني
اعتلال عضلة القلب: هو تدهور لوظيفة عضلة القلب بشكل عام تنتهي عادةً بفشل في الجهد العضلي للقلب مما يتسبب في ضيق التنفس وتورم في الساقين بسبب احتباس السوائل فيها. حيث تزيد عند بعض الأشخاص الذين يحملون سمات جينية محددة نسبة الإصابة بهذا الاعتلال.		انخفاض احتمالية الإصابة باعتلال القلب
	✔	متوسط احتمالية الإصابة باعتلال القلب
		ارتفاع احتمالية الإصابة باعتلال القلب
ارتفاع الدهون الثلاثية: هي حالة مرضية تزيد فيها الدهون الثلاثية في الدم بشكل مستمر وتربط بعض الأحيان بزيادة الكوليسترول كذلك مما تؤدي إلى تصلب الشرايين. حيث تزيد عند بعض الأشخاص الذين يحملون سمات جينية محددة نسبة الإصابة بهذا الارتفاع.	✔	انخفاض احتمالية ارتفاع الدهون الثلاثية
		متوسط احتمالية ارتفاع الدهون الثلاثية
		ارتفاع احتمالية ارتفاع الدهون الثلاثية

نتائج فحص السمات الوراثية الخاصة بكم
احتمالية الإصابة بالأمراض المزمنة

السمة الجينية	نتيجتك	النتائج المحتملة
ارتفاع الكوليسترول العائلي: يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من عدم إمكانية التخلص من البروتينات الدهنية منخفضة الكثافة مما يتسبب في زيادة الكوليسترول في الدم.	✔	انخفاض احتمالية الإصابة بارتفاع الكوليسترول
		متوسط احتمالية الإصابة بارتفاع الكوليسترول
		ارتفاع احتمالية الإصابة بارتفاع الكوليسترول
مرض الكبد الدهني غير الكحولي: ويعتبر من الأمراض التراكمية الخطرة على صحة الإنسان، حيث يظهر المرض على شكل تراكم تدرجي للدهون على الكبد حتى يفقد الكبد قدرته على العمل والقيام بمهامه الوظيفية.		انخفاض احتمالية الإصابة بالكبد الدهني
	✔	متوسط احتمالية الإصابة بالكبد الدهني
		ارتفاع احتمالية الإصابة بالكبد الدهني
خمول الغدة الدرقية: هو اضطراب شائع في الغدة الدرقية تنقص بسببه كمية الهرمون المفرز من الغدة مما يسبب الخمول والتعب المستمر وزيادة الوزن وضعف العضلات. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل الإصابة بخمول الدرقية.		انخفاض احتمالية الإصابة بخمول الدرقية
	✔	متوسط احتمالية الإصابة بخمول الدرقية
		ارتفاع احتمالية الإصابة بخمول الدرقية
الصداع النصفي: اضطراب عصبي مزمن يتميز بتكرر حالات معتدلة إلى شديدة من الصداع ويتميز الصداع بحدوثه في جانب واحد (يؤثر على نصف الرأس) وبأنه نابض بطبيعته ويستمر لساعات. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالصداع النصفي.	✔	انخفاض احتمالية الإصابة بالصداع النصفي
		متوسط احتمالية الإصابة بالصداع النصفي
		ارتفاع احتمالية الإصابة بالصداع النصفي
التهاب الفصال العظمي: هو اضطراب للأنسجة المفصلية والعظمية سببه الفقدان التدريجي للمادة المكونة للغضروف، ويمكن وصفه بأنه السبب الأكثر شيوعاً للعجز، حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل الإصابة بالفصال.	✔	انخفاض احتمالية الإصابة بالتهاب الفصال
		متوسط احتمالية الإصابة بالتهاب الفصال
		ارتفاع احتمالية الإصابة بالتهاب الفصال
هشاشة العظام: يعود سبب ضعف أو هشاشة العظام إلى النقص في مستوى الكالسيوم والفُسفور، أو النقص في معادن أخرى في العظام مما يؤدي إلى زيادة نسبة الكسور التي تحدث بسبب الروتين اليومي.	✔	انخفاض احتمالية الإصابة بهشاشة العظام
		متوسط احتمالية الإصابة بهشاشة العظام
		ارتفاع احتمالية الإصابة بهشاشة العظام
تدني كثافة العظم المعدنية: وهي مجموع التراكيز الخاصة بجميع المعادن المكونة للنسيج العظمي، حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من انخفاض معدل الكثافة مما يتسبب في زيادة الكسور.	✔	انخفاض احتمالية الإصابة بتدني الكثافة
		متوسط احتمالية الإصابة بتدني الكثافة
		ارتفاع احتمالية الإصابة بتدني الكثافة
حصيات المرارة: هي تكوينات ملحية تتشكل على هيئة أحجار صغيرة داخل المرارة تسبب ألم مستمر في الجزء الأيمن العلوي من البطن وتغير في لون البول. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل تشكل الحصيات.	✔	انخفاض احتمالية تشكل حصيات المرارة
		متوسط احتمالية تشكل حصيات المرارة
		ارتفاع احتمالية تشكل حصيات المرارة
الفشل الكلوي: هو الفقدان الجزئي والتراكمي لوظيفة الوحدات المكونة للنسيج الكلوي، أو ما يعرف بالنفرونات، على مدى سنوات حتى تصبح الكلية عاطلة تماماً عن العمل. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل الإصابة بالفشل الكلوي.	✔	انخفاض احتمالية الإصابة بالفشل الكلوي
		متوسط احتمالية الإصابة بالفشل الكلوي
		ارتفاع احتمالية الإصابة بالفشل الكلوي

نتائج فحص السمات الوراثية الخاصة بكم
احتمالية الإصابة بالأمراض المزمنة

السمة الجينية	نتيجتك	النتائج المحتملة
الضمور البقعي: هي حالة طبية تصيب العينين وتؤدي إلى فقدان البصر في مركز المجال البصري (منتصف مجال الرؤية غالباً) بسبب التلف الذي يلحق بالشبكية. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل الإصابة بالضمور.	✔	انخفاض احتمالية الإصابة بالضمور البقعي
		متوسط احتمالية الإصابة بالضمور البقعي
		ارتفاع احتمالية الإصابة بالضمور البقعي
المياه الزرقاء: هي حالة يرتفع فيها ضغط العين مما يتسبب في إتلاف أنسجة العصب البصري وفقدان الإبصار. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل الإصابة بالمياه الزرقاء.		انخفاض احتمالية الإصابة بالمياه الزرقاء
	✔	متوسط احتمالية الإصابة بالمياه الزرقاء
		ارتفاع احتمالية الإصابة بالمياه الزرقاء
حثل المخروطية: هي حالة مرضية تفقد العين فيها الخلايا المخروطية التي تقوم بعملية استقبال الضور وتمييز الألوان. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل الإصابة بحثل الخلايا المخروطية.		انخفاض احتمالية الإصابة بحثل المخروطية
	✔	متوسط احتمالية الإصابة بحثل المخروطية
		ارتفاع احتمالية الإصابة بحثل المخروطية
مرض الانسداد الرئوي المزمن: ويعتبر من الأمراض التراكمية التي انتشرت بكثرة في الدول النامية، حيث يظهر المرض على شكل انسداد تدرجي في الشعب الهوائية الكبيرة أو الصغيرة حتى تصبح هنالك صعوبة بالقيام حتى بأقل قدر من الجهد كالمشي.		انخفاض احتمالية الإصابة بالانسداد الرئوي
	✔	متوسط احتمالية الإصابة بالانسداد الرئوي
		ارتفاع احتمالية الإصابة بالانسداد الرئوي
الربو: عبارة عن مرض مزمن يصيب الشعب الهوائية في الرئتين الأمر الذي يقلل أو يمنع من تدفق الهواء إلى هذه الشعب مسبباً نوبات متكررة من ضيق التنفس. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالربو.		انخفاض احتمالية الإصابة بالربو
	✔	متوسط احتمالية الإصابة بالربو
		ارتفاع احتمالية الإصابة بالربو
الزهايمر: هو اعتلال يصيب خلايا المخ يتسبب في فقدان الذاكرة بدايةً ومن ثم تقلّب المزاج، فقدان القدرة على العناية بالنفس، ومشاكل سلوكية أخرى. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالزهايمر.		انخفاض احتمالية الإصابة بالزهايمر
	✔	متوسط احتمالية الإصابة بالزهايمر
		ارتفاع احتمالية الإصابة بالزهايمر
مرض نشواني: حالة مرضية يترسب فيها بروتين نشواني في حالة صلبة جزئياً ليشكل تشوهات جلدية أو بقع ملونة ظاهرة. ويعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بمرض نشواني.		انخفاض احتمالية الإصابة بمرض نشواني
	✔	متوسط احتمالية الإصابة بمرض نشواني
		ارتفاع احتمالية الإصابة بمرض نشواني
القلق المفرط: هو اعتلال نفسي قهري يجعل الشخص دائم القلق والخوف والتشاؤم حتى من المشاكل الطبيعية أو البسيطة التي يعاني منها الجميع بشكل عادي. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالقلق المفرط.	✔	انخفاض احتمالية الإصابة بالقلق المفرط
		متوسط احتمالية الإصابة بالقلق المفرط
		ارتفاع احتمالية الإصابة بالقلق المفرط
التوحد: هو اضطراب نفسي يتمثل في ضعف التواصل الاجتماعي واللفظي وزيادة الأنماط السلوكية المكررة. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة معدل الإصابة بالتوحد.	✔	انخفاض احتمالية الإصابة بالتوحد
		متوسط احتمالية الإصابة بالتوحد
		ارتفاع احتمالية الإصابة بالتوحد

نتائج فحص السمات الوراثية الخاصة بكم
احتمالية الإصابة بالأمراض المزمنة

السمة الجينية	نتيجتك	النتائج المحتملة
الشلل الرعاش: هو اعتلال يصيب الجهاز العصبي المركزي يتسبب في موت الخلايا العصبية العنكبوتية مما يؤدي إلى فقدان الوظائف العصبية مثل الحركة والإحساس والذاكرة. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالشلل الرعاش.	✔	انخفاض احتمالية الإصابة بالشلل الرعاش
		متوسط احتمالية الإصابة بالشلل الرعاش
		ارتفاع احتمالية الإصابة بالشلل الرعاش
انفصام الشخصية: هو اضطراب نفسي يتسم بسلوك اجتماعي غير طبيعي وفشل في تمييز الواقع وانخفاض المشاركة الاجتماعية والتعبير العاطفي وانعدام الإرادة. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بانفصام الشخصية.		انخفاض احتمالية الإصابة بانفصام الشخصية
	✔	متوسط احتمالية الإصابة بانفصام الشخصية
		ارتفاع احتمالية الإصابة بانفصام الشخصية
متلازمة بلوم: هيَ مرض وراثي نادر يسبب العديد من الأعراض مثل قصر القامة وضيق الوجه وكثرة الطفح الجلدي. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بمتلازمة بلوم.	✔	انخفاض احتمالية الإصابة بمتلازمة بلوم
		متوسط احتمالية الإصابة بمتلازمة بلوم
		ارتفاع احتمالية الإصابة بمتلازمة بلوم
التليف الكيسي: حالة مرضية وراثية تتمثل في تراكم طبقة سميكة ولزجة من المخاط على بعض الأعضاء الداخلية في الجسم مما يعيق عملها بشكل عام. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالتليف الكيسي.	✔	انخفاض احتمالية الإصابة بالتليف الكيسي
		متوسط احتمالية الإصابة بالتليف الكيسي
		ارتفاع احتمالية الإصابة بالتليف الكيسي
الاكتئاب: هو اعتلال نفسي يجعل الشخص دائم الحزن والشعور بعدم الرضا عن النفس أو النقص والدونية بشكل مستمر حتى عند يكون الشخص ناجحاً أو متميزاً. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالاكتئاب.	✔	انخفاض احتمالية الإصابة بالاكتئاب
		متوسط احتمالية الإصابة بالاكتئاب
		ارتفاع احتمالية الإصابة بالاكتئاب
الصرع: هو اختلال عصبي ينتج عن اضطراب الإشارات الكهربائية في خلايا المخ يسبب فقدان الوعي وما قد يرافقه من تشنجات. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالصرع.	✔	انخفاض احتمالية الإصابة بالصرع
		متوسط احتمالية الإصابة بالصرع
		ارتفاع احتمالية الإصابة بالصرع
النقرس: هو حالة مرضية تتصف عادةً بتكرار حدوث الإصابة بالتهاب المفاصل الحاد سببه استمرار الارتفاع في مستويات حمض البول بالدم لفترة طويلة. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالنقرس.	✔	انخفاض احتمالية الإصابة بالنقرس
		متوسط احتمالية الإصابة بالنقرس
		ارتفاع احتمالية الإصابة بالنقرس
فرط حمل الحديد: حالة مرضية تؤدي إلى امتصاص كميات كبيرة من الحديد من الجهاز الهضمي فتترسب في الكبد وقد يؤدي هذا الأمر دون علاجه إلى حدوث سرطان الكبد. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بفرط حمل الحديد.	✔	انخفاض احتمالية الإصابة بفرط حمل الحديد
		متوسط احتمالية الإصابة بفرط حمل الحديد
		ارتفاع احتمالية الإصابة بفرط حمل الحديد
فقر الدم: حالة مرضية بسبب انخفاض مستوى الهيموغلوبين في الدم مما يؤدي إلى نقص توصيل الأوكسجين للأنسجة وبالتالي الشعور بالإرهاق والصداع وعدم التركيز والخمول وغيرها. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بفقر الدم.		انخفاض احتمالية الإصابة بفقر الدم
	✔	متوسط احتمالية الإصابة بفقر الدم
		ارتفاع احتمالية الإصابة بفقر الدم

نتائج فحص السمات الوراثية الخاصة بكم
احتمالية الإصابة بالأمراض المزمنة

السمة الجينية	نتيجتك	النتائج المحتملة
بيتا ثلاسيميا: هو اعتلال مرضي يسبب نقص شديد في انتاج الهيموجلوبين السليم، مما يؤدي إلى نقص في كمية الأكسجين الذي يصل إلى جميع الأنسجة للجسم. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالثلاسيميا.	✔	انخفاض احتمالية الإصابة بالثلاسيميا
		متوسط احتمالية الإصابة بالثلاسيميا
		ارتفاع احتمالية الإصابة بالثلاسيميا
الهيموفيليا: هي حالة نزيف دم وراثي يسبب خلل في عملية التجلط في الدم ومن ثم نزيف إما خارجي أو داخلي. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالثلاسيميا.	✔	انخفاض احتمالية الإصابة بالهيموفيليا
		متوسط احتمالية الإصابة بالهيموفيليا
		ارتفاع احتمالية الإصابة بالهيموفيليا
داء اختزان الغلايكوجين: هي حالة مرضية تحدث نتيجة لِحدوث خلل أو عيب في آلية تصنيع الغلايكوجين أو نتيجةً لحدوث تكسر في العضلات أو الكبد وأنواع أخرى من الخلايا. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بداء اختزان الغلايكوجين.		انخفاض احتمالية الإصابة بداء الاختزان
	✔	متوسط احتمالية الإصابة بداء الاختزان
		ارتفاع احتمالية الإصابة بداء الاختزان
الروماتيزم: مرض التهابي مزمن يصيب عادة المفاصل الصغيرة في اليدين والقدمين ويؤثر على بطانة المفاصل، مما تسبب تورم مؤلم يمكن أن يؤدي في النهاية إلى تآكل العظام وتشوه المفاصل. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالروماتيزم.	✔	انخفاض احتمالية الإصابة بالروماتيزم
		متوسط احتمالية الإصابة بالروماتيزم
		ارتفاع احتمالية الإصابة بالروماتيزم
الميلان الجانبي في العمود الفقري: هي حالة مرضية تصيب العمود الفقري وتسبب له انحراف (ميلان)، واستدارة الفقرات أيضا بهذا الاتجاه بحيث لا يكون فيها العمود الفقري عمودي. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالميلان.		انخفاض احتمالية الإصابة بالميلان
	✔	متوسط احتمالية الإصابة بالميلان
		ارتفاع احتمالية الإصابة بالميلان
التصلّب اللويحي: هي حالة مرضية تسبب تلف أغشية المايلين المحيطة بالخلايا العصبية في الدماغ والحبل الشوكي مما يسبب خللاً في عمل تلك الخلايا ينتج عنه أعراض حركية وإدراكية. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالتصلب.		انخفاض احتمالية الإصابة بالتصلب
	✔	متوسط احتمالية الإصابة بالتصلب
		ارتفاع احتمالية الإصابة بالتصلب
التهاب القولون التقرحي: ويعتبر من الالتهابات المزمنة التي تسبب إصابات والتهابات في البطانة الداخلية مصحوبة بألم في البطن، وإسهال مع نزيف في المستقيم، ويعتبر الأشخاص الذين تتراوح أعمارهم بين ٢٠-٤٠ سنة أكثر عرضة للإصابة به.	✔	انخفاض احتمالية الإصابة بالقولون التقرحي
		متوسط احتمالية الإصابة بالقولون التقرحي
		ارتفاع احتمالية الإصابة بالقولون التقرحي
داء كرون: هي حالة مرضية التهابية يمكن أن يؤثر على أي جزء من الجهاز الهضمي تسبب آلام البطن والإسهال وفقدان الوزن ويكون المصابون بها أكثر عرضةً للإصابة بسرطان القولون من غيرهم. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بداء كرون.	✔	انخفاض احتمالية الإصابة بداء كرون
		متوسط احتمالية الإصابة بداء كرون
		ارتفاع احتمالية الإصابة بداء كرون

نتائج فحص السمات الوراثية الخاصة بكم
احتمالية الإصابة بالأمراض المزمنة

السمة الجينية	نتيجتك	النتائج المحتملة
البهاق: هو اختلال في صبغة الميلانين أو فقدان الميلانين من الجلد الذي يؤدي إلى تكون بقع بيضاء صغيرة سرعان ما تبدأ في التوسع مكونه مناطق بيضاء كبيره في أنحاء الجسم، حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالبهاق.		انخفاض احتمالية الإصابة بالبهاق
	✔	متوسط احتمالية الإصابة بالبهاق
		ارتفاع احتمالية الإصابة بالبهاق
الثعلبة: هي حالة مرضية جلدية تتسبب في فقدان الشعر من منطقة معينة غالباً ما تكون في الرأس على شكل دوائر صلعاء. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بالثعلبة.	✔	انخفاض احتمالية الإصابة بالثعلبة
		متوسط احتمالية الإصابة بالثعلبة
		ارتفاع احتمالية الإصابة بالثعلبة
فقدان الشهية العصبي: هي حالة مرضية نفسية تجعل صاحبها متخوفاً من زيادة الوزن وغالباً ما تجبره على الابتعاد المرضي عن الأكل والتجويع القهري واستخدام حبوب الحمية أو مدر البول بشكل متكرر. حيث يعاني بعض الأشخاص الذين يحملون سمات جينية محددة من زيادة الإصابة بفقدان الشهية العصبي.	✔	انخفاض احتمالية فقدان الشهية العصبي
		متوسط احتمالية فقدان الشهية العصبي
		ارتفاع احتمالية فقدان الشهية العصبي
صميم البروتين الشحمي: هو بروتين يدخل في عملية تمثيل ونقل المواد الدهنية والشحوم من الأمعاء الدقيقة إلى الكبد. وترتبط الطفرات الجينية فيه بالإصابة بمرض الزهايمر		نسبة خطر منخفضة (E2/E2)
	✔	نسبة خطر عادية (E3/E3)
		نسبة خطر مرتفع (E4/E4)

INTRODUCTION

Understanding your report

Have you ever wondered why certain diseases run in families? And how some people could break that chain? When you learn about your predispositions, you have an opportunity to take preventive action.

In a study conducted by The New England Journal of Medicine, 50,000 adults who had a high genetic risk for developing heart disease were asked about 4 essential lifestyle factors, whether they a) exercised every week, b) ate a balanced diet, c) were obese and d) whether they smoked. When the participants met at least three of the four lifestyle factors, their lifestyle was considered favorable.

The study showed that people, even with a high genetic risk for heart disease, could lower their risk for heart disease by 45% if they lead a favorable lifestyle. In other words, even if you had 'bad' genes passed on to you, you could beat the odds of having the disease by leading a healthy lifestyle. So finding out about your genetic risk might just be what you need to structure a healthy lifestyle and improve your chances of a disease free life.

Some interesting facts about genes and health:

- Studies conducted on twins have shown that 50–70% of the body mass index (BMI) variance may be explained by genetics
- One copy of the FTO allele increases the risk of developing type 2 diabetes by 25%, having two by 50%.
- People carrying one copy of the FTO allele have a 30% increased risk of being obese compared to a person with no copies. However, a person carrying two copies of the allele has a 70% increased risk of being obese, being on average 3 kg heavier than a similar person with no copies.
- According to WHO, the global prevalence of diabetes among people over 18 years is 8.5% (422 million adults).
- One third of people with diabetes do not know that they have diabetes.
- Heritability studies have shown 30-70% risk for type 2 diabetes among families.
- A large Nurses' Health Study concluded that around 30% of the new cases of obesity and 43% of type 2 diabetes could be prevented by adoption of a relatively active lifestyle.
- Lifestyle intervention reduced risk for type 2 diabetes by 58% in a Finnish population, 67.4% in a Japanese population and 28.5% in Indian population.

In this report, we profile genes that have been shown to influence risk of more than 45 health conditions.

We hope that this report will help you understand your body better and to align your lifestyle to your genetics to reduce risk for diseases and live a healthy life.

INTRODUCTION

How to read your report

Human health is a complex interplay between genetics and the environment (lifestyle, diet, activity, stress and other triggers). Your genes and environmental factors play a vital role in your health and well-being.

This is not a medical diagnostic report

Ancestry tests are not clinically certified and should not be used for medical purposes

The health outcomes presented in this report are determined by the number of markers present in your genome raw data, which differs significantly between companies. Genetic Research is an emerging field and the genetic basis of many health conditions is yet to be fully established.

This report is presented in a user friendly language and format. The following tips will help you get the best information value out of it.

1. What does it mean to have a high genetic tendency for a health condition?

It is generally know that high cholesterol can lead to heart conditions. However, there are individuals with high cholesterol who do not develop heart disease. Similarly, genetic factors may increase the risk for a particular condition but the individual may not always develop the condition during his/her lifetime. Though there are over 50 gene risk variations which have identified for heart disease, they only account for 10% of the heritable risk for heart disease. Moreover, genetic factors could increase the risk for certain health conditions but other factors may modify the risk, which is why the outcomes are termed as "likely" and not definitive.

2. What do the various terms used in the report mean?

Gene markers analyzed: The number of gene markers that are being considered to evaluate the outcome for a specific condition.

Gene markers present in your genome raw data: This represents the number of gene markers from the gene markers analyzed that are present in your genome raw data.

Gene risk variants detected in your genome data: This represents the number of gene markers with the risk genotype that are present in your genome raw data

3. What is the most appropriate way to interpret genetic results?

Only a few human health conditions are dependent on a single gene marker. The vast majority of human traits are influenced by multiple gene markers. In addition, there is a significant interaction between your genes and your environmental factors such as dietary and lifestyle factors. The best way to consider the information presented in this genetic report or any other non-clinical genetic report is to look for corroborating evidence to the genetic report outcome. If symptoms or family history or blood report data confirm the outcome of the genetic report, then you may consult your physician for further diagnosis of the condition.

4. Where did the information contained in the report come from?

The genetic markers that are used in this report are based on scientific studies published in international journals. A list of references is available for you to read on our web blog.

5. How was my outcome estimated?

Your outcome is a subjective measure and not a clinial measure. It is the percentage of risk markers present in your genome data among the maximum possible risk markers in your genome data. Please bear in mind that this is a subjective measure and not a clinically validated measure.

6. My risk for most health conditions is mild or moderately elevated, how do I interpret this?

We analyze a large number of risk variants and calculate a Genetic Risk Score (GRS). Unless you have several of these high risk variants present in your data, you will see mildly or moderately elevated as the outcome.

Health Results

TRAIT NAME	YOUR RESULTS	POSSIBLE OUTCOMES
Obesity Obesity is a condition in which there is excessive body fat. People of certain genetic types are at a higher risk for obesity		Mild: Likely low genetic risk for obesity
	✓	Moderate: Likely moderate genetic risk for obesity
		High: Likely high genetic risk for obesity
Type 2 Diabetes Diabetes is a chronic condition that affects the way glucose is processed by the body. People of certain genetic types are at a higher risk for diabetes.	✓	Mild: Likely low genetic risk for type 2 diabetes
		Moderate: Likely moderate genetic risk for type 2 diabetes
		High: Likely high genetic risk for type 2 diabetes
Heart Disease Heart disease includes a range of diseases that affect the heart. People of certain genetic types are at a higher risk for heart disease		Mild: Likely low genetic risk for heart disease
		Moderate: Likely moderate genetic risk for heart disease
	✓	High: Likely high genetic risk for heart disease
Hypertension Hypertension is persistently elevated blood pressure in the arteries. People of certain genetic types are at a higher risk for hypertension.	✓	Mild: Likely low genetic risk for hypertension
		Moderate: Likely moderate genetic risk for hypertension
		High: Likely high genetic risk for hypertension
Stroke Stroke is a condition in which blood flow to regions of the brain is cut off resulting in cell death. People of certain genetic types are at a higher risk for stroke.	✓	Mild: Likely low genetic risk for stroke
		Moderate: Likely moderate genetic risk for stroke
		High: Likely high genetic risk for stroke
Thrombosis Thrombosis is the development of blood clots in a blood vessel. People of certain genetic types are at a higher risk for thrombosis.	✓	Mild: Likely low genetic risk for thrombosis
		Moderate: Likely moderate genetic risk for thrombosis
		High: Likely high genetic risk for thrombosis
Atrial Fibrillation Atrial fibrillation is a heart condition in which there is an irregular heartbeat. People of certain genetic types are at a higher risk for atrial fibrillation.	✓	Mild: Likely low genetic risk for atrial fibrillation
		Moderate: Likely moderate genetic risk for atrial fibrillation
		High: Likely high genetic risk for atrial fibrillation
Cardiomyopathy Cardiomyopathy is a disease of the heart muscles. People of certain genetic types are at a higher risk for cardiomyopathy.		Mild: Likely low genetic risk for cardiomyopathy
	✓	Moderate: Likely moderate genetic risk for cardiomyopathy
		High: Likely high genetic risk for cardiomyopathy
Hypertriglyceridemia Hypertriglyceridemia (HTG) is a condition in which there is elevated levels of triglycerides. People of certain genetic types have a higher risk for HTG.	✓	Mild: Likely low genetic risk for hypertriglyceridemia
		Moderate: Likely moderate genetic risk for hypertriglyceridemia
		High: Likely high genetic risk for hypertriglyceridemia

TRAIT NAME	YOUR RESULTS	POSSIBLE OUTCOMES
Familial Hypercholesterolemia Familial hypercholesterolemia (FH) is the body's inability to remove LDL. People of certain genetic types have a higher risk for FH.	✓	Mild: Likely low genetic risk for FH
		Moderate: Likely moderate genetic risk for FH
		High: Likely high genetic risk for FH
Non-Alcoholic Fatty Liver Disease Non-alcoholic fatty liver disease (NAFLD) is a type of fatty liver disease. People of certain genetic types are at a higher risk for NAFLD.		Mild: Likely low genetic risk for NAFLD
	✓	Moderate: Likely moderate genetic risk for NAFLD
		High: Likely high genetic risk for NAFLD
Hypothyroidism Hypothyroidism is an endocrine disorder. People of certain genetic types are at a higher risk for hypothyroidism		Mild: Likely low genetic risk for hypothyroidism
	✓	Moderate: Likely moderate genetic risk for hypothyroidism
		High: Likely high genetic risk for hypothyroidism
Migraine Migraine is recurrent headache that ranges from being mild to severe. People of certain genetic types are at a higher risk for migraine.	✓	Mild: Likely low genetic risk for migraine
		Moderate: Likely moderate genetic risk for migraine
		High: Likely high genetic risk for migraine
Osteoarthritis Osteoarthritis is characterised by breakdown of the joint cartilage and the bone. People of certain genetic types are at a higher risk for osteoarthritis.	✓	Mild: Likely low genetic risk for osteoarthritis
		Moderate: Likely moderate genetic risk for osteoarthritis
		High: Likely high genetic risk for osteoarthritis
Osteoporosis Osteoporosis is a condition in which bones become fragile and prone to fractures. People of certain genetic types are at a higher risk for osteoporosis.	✓	Mild: Likely low genetic risk for osteoporosis
		Moderate: Likely moderate genetic risk for osteoporosis
		High: Likely high genetic risk for osteoporosis
Bone Mineral Density Bone mineral density (BMD) is the amount of bone mineral in bone tissue. People of certain genetic types are at a higher risk for low BMD.	✓	Mild: Likely low genetic risk for low bone mineral density
		Moderate: Likely moderate genetic risk for low bone mineral density
		High: Likely high genetic risk for low bone mineral density
Gallstone Disease Gallstones are hardened deposits formed in the gallbladder. People of certain genetic types are at a higher risk for gallstones.	✓	Mild: Likely low genetic risk for gallstones
		Moderate: Likely moderate genetic risk for gallstones
		High: Likely high genetic risk for gallstones
Chronic Kidney Disease Chronic kidney disease (CKD) is a gradual loss of kidney function. People of certain genetic types have a higher risk for CKD.	✓	Mild: Likely low genetic risk for chronic kidney disease
		Moderate: Likely moderate genetic risk for chronic kidney disease
		High: Likely high genetic risk for chronic kidney disease
Age-Related Macular Degeneration Age related macular degeneration (AMD) causes blurring of sight or loss of central vision. People of certain genetic types are at a higher risk for AMD.	✓	Mild: Likely low genetic risk for AMD
		Moderate: Likely moderate genetic risk for AMD
		High: Likely high genetic risk for AMD

TRAIT NAME	YOUR RESULTS	POSSIBLE OUTCOMES
Glaucoma Glaucoma is a condition in which there is increased fluid pressure in the eye. People of certain genetic types have a higher risk for glaucoma		Mild: Likely low genetic risk for glaucoma
	✔	Moderate: Likely moderate genetic risk for glaucoma
		High: Likely high genetic risk for glaucoma
Cone-Rod Dystrophy Cone rod dystrophy(CRD) is an inherited disorder of the eye. People of certain genetic types are at a higher risk for CRD.		Mild: Likely low genetic risk for cone rod dystrophy
	✔	Moderate: Likely moderate genetic risk for cone rod dystrophy
		High: Likely high genetic risk for cone rod dystrophy
Chronic Obstructive Pulmonary Disease Chronic obstructive pulmonary disease (COPD) is a progressive lung disease. People of certain genetic types have a higher risk for COPD		Mild: Likely low genetic risk for COPD
	✔	Moderate: Likely moderate genetic risk for COPD.
		High: Likely high genetic risk for COPD
Asthma Asthma is a common chronic inflammatory condition of the airways of the lungs. People of certain genetic types are at a higher risk for asthma.		Mild: Likely low genetic risk for asthma
	✔	Moderate: Likely moderate genetic risk for asthma
		High: Likely high genetic risk for asthma
Alzheimer'S Disease Alzheimer's disease is a progressive neurodegenerative disorder. People of certain genetic types have a higher risk for Alzheimer's disease.		Mild: Likely low genetic risk for alzheimer's disease
	✔	Moderate: Likely moderate genetic risk for alzheimer's disease
		High: Likely high genetic risk for alzheimer's disease
Amyloidosis Amyloidosis is a condition in which there is an abnormal buildup of amyloid. People of certain genetic types are at a higher risk for amyloidosis.		Mild: Likely low genetic risk for amyloidosis
	✔	Moderate: Likely moderate genetic risk for amyloidosis
		High: Likely high genetic risk for amyloidosis
Anxiety Anxiety disorders are characterised by feelings of fear and anxiety. People of certain genetic types are at a higher risk of developing anxiety disorders.	✔	Mild: Likely low genetic risk for anxiety
		Moderate: Likely moderate genetic risk for anxiety
		High: Likely high genetic risk for anxiety
Autism Autism includes a range of disorders associated with social skills. People of certain genetic types have a higher risk for autism	✔	Mild: Likely low genetic risk for autism
		Moderate: Likely moderate genetic risk for autism
		High: Likely high genetic risk for autism
Parkinson'S Disease Parkinson's is a neurodegenerative disorder affecting the central nervous system. People of certain genetic types are at a higher risk for Parkinson's	✔	Mild: Likely low genetic risk for Parkinson's disease
		Moderate: Likely moderate genetic risk for Parkinson's disease
		High: Likely high genetic risk for Parkinson's disease
Schizophrenia Schizophrenia is a mental health related disorder. People of certain genetic types are at a higher risk for schizophrenia.		Mild: Likely low genetic risk for schizophrenia
	✔	Moderate: Likely moderate genetic risk for schizophrenia
		High: Likely high genetic risk for schizophrenia

TRAIT NAME	YOUR RESULTS	POSSIBLE OUTCOMES
Bloom Syndrome Bloom's syndrome (BS) is a condition characterised by an increased risk of genomic instability. People of certain genetic types are at a higher risk for BS.	✓	Mild: Likely low genetic risk for bloom's syndrome
		Moderate: Likely moderate genetic risk for bloom's syndrome
		High: Likely high genetic risk for bloom's syndrome
Cystic Fibrosis Cystic fibrosis (CF) is a condition that affects the lungs and the digestive system. People of certain genetic types have a higher risk for CF.	✓	Mild: Likely low genetic risk for cystic fibrosis
		Moderate: Likely moderate genetic risk for cystic fibrosis
		High: Likely high genetic risk for cystic fibrosis
Depression Depression is a serious yet common mood disorder. People of certain genetic types are at a higher risk of developing depression.	✓	Mild: Likely low genetic risk for depression
		Moderate: Likely moderate genetic risk for depression
		High: Likely high genetic risk for depression
Epilepsy Epilepsy constitutes a group of disorders which are characterised by epileptic seizures. People of certain genetic types are at a higher risk for epilepsy	✓	Mild: Likely low genetic risk for epilepsy
		Moderate: Likely moderate genetic risk for epilepsy
		High: Likely high genetic risk for epilepsy
Gout Gout is a severe form of inflammatory arthritis. People of certain genetic types are at a higher risk for gout.	✓	Mild: Likely low genetic risk for gout
		Moderate: Likely moderate genetic risk for gout
		High: Likely high genetic risk for gout
Hemochromatosis Hemochromatosis is the leading cause of iron overload disease. People of certain genetic types have a higher risk for hemochromatosis.	✓	Mild: Likely low genetic risk for hemochromatosis
		Moderate: Likely moderate genetic risk for hemochromatosis
		High: Likely high genetic risk for hemochromatosis
Anemia Anemia is a condition in which there is insufficient healthy red blood cells. People of certain genetic types are at an increased risk for anemia.		Mild: Likely low genetic risk for anemia
	✓	Moderate: Likely moderate genetic risk for anemia
		High: Likely high genetic risk for anemia
Beta Thalassemia Beta thalassemia results in reduced production of hemoglobin. People of certain genetic types are at a higher risk for beta thalassemia.	✓	Mild: Likely low genetic risk for beta thalassemia
		Moderate: Likely moderate genetic risk for beta thalassemia
		High: Likely high genetic risk for beta thalassemia
Hemophilia Hemophilia is a condition in which there is excessive bleeding. People of certain genetic types have a higher risk for hemophilia.	✓	Mild: Likely low genetic risk for hemophilia
		Moderate: Likely moderate genetic risk for hemophilia
		High: Likely high genetic risk for hemophilia
Glycogen Storage Disease Glycogen storage disease (GSD) is a condition characterised by poor glycogen metabolism. People of certain genetic types have a higher risk for GSD.		Mild: Likely low genetic risk for glycogen storage disease
	✓	Moderate: Likely moderate genetic risk for glycogen storage disease
		High: Likely high genetic risk for glycogen storage disease

TRAIT NAME	YOUR RESULTS	POSSIBLE OUTCOMES
Rheumatoid Arthritis Rheumatoid arthritis is an autoimmune disorder affecting the joints. People of certain genetic types are at a higher risk for rheumatoid arthritis.	✓	Mild: Likely low genetic risk for rheumatoid arthritis
		Moderate: Likely moderate genetic risk for rheumatoid arthritis
		High: Likely high genetic risk for rheumatoid arthritis
Scoliosis Scoliosis is a condition in which the spinal cord is curved sideways. People of certain genetic types are at a higher risk for scoliosis.		Mild: Likely low genetic risk for scoliosis
	✓	Moderate: Likely moderate genetic risk for scoliosis
		High: Likely high genetic risk for scoliosis
Multiple Sclerosis Multiple sclerosis (MS) is an autoinflammatory debilitating disease. People of certain genetic types are at a higher risk for MS		Mild: Likely low genetic risk for multiple sclerosis
	✓	Moderate: Likely moderate genetic risk for multiple sclerosis
		High: Likely high genetic risk for multiple sclerosis
Ulcerative Colitis Ulcerative colitis is an inflammatory bowel disease. People of certain genetic types have a higher risk for ulcerative colitis.	✓	Mild: Likely low genetic risk for ulcerative colitis
		Moderate: Likely moderate genetic risk for ulcerative colitis
		High: Likely high genetic risk for ulcerative colitis
Crohn'S Disease Crohn's disease (CD) is a chronic inflammatory disease of the digestive tract. People of certain genetic types are at a higher risk for CD.	✓	Mild: Likely low genetic risk for crohn's disease
		Moderate: Likely moderate genetic risk for crohn's disease
		High: Likely high genetic risk for crohn's disease
Vitiligo Vitiligo is a skin condition which is characterised by white patches. People of certain genetic types are at a higher risk for vitiligo.		Mild: Likely low genetic risk for vitiligo
	✓	Moderate: Likely moderate genetic risk for vitiligo
		High: Likely high genetic risk for vitiligo
Alopecia Areata Alopecia areata (AA) is an autoimmune condition in which there is loss of hair. People of certain genetic types are at a higher risk for AA	✓	Mild: Likely low genetic risk for alopecia areata
		Moderate: Likely moderate genetic risk for alopecia areata
		High: Likely high genetic risk for alopecia areata
Anorexia Anorexia is a psychological eating disorder. People of certain genetic types are at a higher risk for anorexia	✓	Mild: Likely low genetic risk for anorexia
		Moderate: Likely moderate genetic risk for anorexia
		High: Likely high genetic risk for anorexia
ApoE Status ApoE is an FDA approved marker for Alzheimer's Disease (AD). Note: This outcome may differ from the AD outcome indicated above, which includes several other genes besides ApoE		E2/E2 - Lower than normal risk
	✓	E3/E3 - Normal Risk
		E4/E4 - High Risk

1. OBESITY

Moderate: Likely moderate genetic risk for obesity

Obesity is a condition in which there is excessive body fat, increasing the risk for various metabolic conditions. Obesity is generally measured using the body mass index (BMI), which is obtained by dividing the weight of a person (in Kg) by the square of the person's height in meters. A person with a BMI over 30 kg/m^2 is considered obese while a BMI between 25–30 kg/m^2 is defined as being overweight. People of certain genetic types are at a higher risk of being obese and should watch out for symptoms like **breathlessness, inability to cope with physical activity, fatigue, joint and back pain and poor self-confidence.**

Gene markers analyzed: 460
Gene markers present in your genome data: 428
Potential risk variants detected in your genome data: 3
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Exercise regularly**- 74% of people with a European ancestry have a variation in the FTO gene associated with an increased risk for obesity. Exercise can greatly lower the effect of this gene to about a third.
• **Eat a healthy breakfast**: A U.S Health and Nutrition Survey found that men who ate a good breakfast weighed 2.7 kilograms less than men who skipped their breakfast.
• **Eat high fibre foods**: High fibre foods have fewer calories, are low in fat and have plenty of roughage which can keep you feeling full longer.
• **Eat green leafy vegetables and plant based food**: Studies have shown that people who ate a vegetarian diet weighed 3 to 20% less than meat eaters.
• **Choose your diet wisely**: Studies have shown that people on a high protein diet which is also rich in slow burning carbohydrate food sources like fruits, vegetables, whole pasta and beans, feel more satiated and lose more weight than people on other diets.

Genes analyzed: *FTO, MC4R, UCP3, POMC, SDC3, LOC150935, NOX4, RLN3, TMEM18, SNRPN, ECE1, NIPSNAP3B, ZNF536, RHPN2, DMRT1, DPYSL5, MBOAT1, SORBS1, ANKAR, LOC101927460, DDX60L, KCNB1, MTUS2, ARHGEF10L, CD46, ECT2, FAM19A2, CDHR3, ANKRD16, PLEKHG1, LOC101928387, LOC101927284, UNC5C, NTM, RHOT1, IFNGR2, STON2, SPAG16, CA8, ACMSD, NXPH1, UNC13A, SLC29A3, RASEF, LPP, LINGO2, BICC1, ARMC4, TACC2, RSU1, ACBD7, BICD1, TENM4, METTL15, AUTS2, SMYD3, LOC101929755, LIPC, PBX4, MYO3A, TMOD1, DLC1, FLJ33534, LOC286238, SIPA1L1, CSMD1, ASIC2, TCFL5, TRAPPC9, MACROD2, GSG1L, NMNAT2, WDPCP, CADM1, ZBTB46, TPTE2P1, HDAC9, WDR11-AS1, PTPRD, PDE4D, ADSS, BTBD8, LHPP, GCH1, GMDS, NDUFA8, SLIT1, LINC01500, RBFOX1, CAMK2A, CUL9, COLEC12, DOCK8, RYR2, KCNN3, ALLC, LINC01299, PKNOX2, AATK, GPC5, PVALB, TUBGCP6, RGS7, ARHGAP24, PTPRN2, C8orf34, CTNNA3, FSIP1, MYO15A, JDP2, IFI16, KIF6, SPOCK3, SLC22A23, KLHL31, TM9SF2, EEPD1, CCDC33, LOC284395, TMEM45B, AK8, CDH2, SERPINA12, NPM2, DEFB128, ASTN2, EVA1A, LOC105376468, LINC00704, CYP2E1, RAB17, PPM1H, LOC284930, FAM209B, FAM110A, TRABD2B, FAM129A, PIP4K2A, RBBP6, LOC401164, VSIG10, LGALS17A, FARP1, FLJ45872, PLEKHG6, CELF2, DAPL1, NLRP8, DLG2, LOC101929492, EHF, SAMD13, S100P, ADCYAP1, SYT1, C2CD4C, TMEM229B, MIR99AHG, RASGEF1A, ZPR1, UGT2B7, COL4A1, KIRREL, ARHGAP11A, SOX6, CARTPT, ANO3, ITPR3, CCDC77, TCF4, FARS2, RMST, PRKCH, PACS1, LHFPL3, PCDH9, MDFIC, WWOX, BCDIN3D-AS1, TRIM66, NCAM2, ETV5, GNAT2, BDNF, POC5, NRXN3, LINC01122, RPTOR, HS6ST3, MAP2K5, BDNF-AS, TTC8, ARL14EP*

2. TYPE 2 DIABETES

Mild: Likely low genetic risk for type 2 diabetes

Diabetes is a chronic condition that affects the way glucose is processed by the body. 27 million people suffer from diabetes in the U.S, with more than 86 million in the pre-diabetes stage. The symptoms of this condition are normally very mild, in fact, 8 million people in the U.S are suspected to have diabetes but they don't know about it. People of certain genetic types are at a higher risk of developing diabetes and should watch out for symptoms like: **excessive thirst, blurry vision, fatigue, irritability and poor wound healing.**

Gene markers analyzed: 164
Gene markers present in your genome data: 148
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Maintaining a healthy weight is essential**: Losing 5 to 7% of your starting weight will help prevent diabetes. Lose weight, if overweight: Every kilogram of weight loss reduced diabetes risk by 16% for people with pre-diabetes.
• **Get physically active**: Check with your doctor before beginning any physical activity. A study by researchers from The University of Bath showed that 10 minute exercise sessions over 6 weeks improved insulin sensitivity by 28%.
• **Exercise**: Moderate exercises increased insulin sensitivity by 58% while high intensity exercises increased insulin sensitivity by 81%.
• **Do not drink sugar sweetened beverages**: Drink water instead of sugar sweetened beverages- People who drank more than 2 cups of sugar sweetened beverage every day had a 20% increased risk of diabetes.
• **Avoid Diet Sodas** : Replacing diet sodas with water during a weight loss diet decreases insulin resistance and lowers fasting glucose levels.
• **Quit Smoking**: Smoking increases the risk for diabetes by 44% among average smokers and by 61% among heavy smokers. 5 years after quitting, the risk for diabetes is reduced by 13%.
• **Follow a low carb diet** :- In a 12 week study, pre-diabetic people on a low carb diet had 12% reduction in blood sugar and 50% in insulin.
• **Stay motivated about changing your lifestyle** : Lifestyle changes lowered diabetes risk by 46% when compared to people with no lifestyle change.

Genes analyzed: *LIMK2, SASH1, WFS1, CDKAL1, ACP7, TCF7L2, LINC00824, IGF2BP2, DNER, PTPRD, GPR45, PEX5L, MARCH1, RHOU, TGFBR3, SDHAF4, GLIS3, GRK5, FTO, ADCY5, FAM58A, ZMIZ1, VPS33B, SLC30A8, RPSAP52, ARAP1, KCNQ1, ST6GAL1, FAF1, MPHOSPH9, PPARG, VPS26A, SLC16A13, POU5F1, SRR, HNF1B, ZBED3-AS1, ADAMTS9-AS2, HNF4A, KCNJ11, MAEA, ARL15, HMG20A, RASGRP1, LOC646736, THADA, RBMS1, UBE2E2, ACHE, LOC101928423, OASL, LAMA1, JAZF1, ZFAND3, SGCG, MTNR1B, SLC2A2, GCK, GCGR, CAPN10, PAX4*

3. HEART DISEASE

High: Likely high genetic risk for heart disease

Heart disease includes coronary heart disease, congestive heart failure, myocardial infarction and heart attack. The different types of heart diseases are identified by a variety of signs and symptoms and only a cardiologist is qualified to diagnose these conditions, definitively. People of certain genetic types are at a higher risk for heart disease and should watch out for signs that include: **shortness of breath, dizziness, fatigue, sweating, palpitations, and an ache in the chest.**

Gene markers analyzed: 80
Gene markers present in your genome data: 68
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data:
chr8:g.11606312T>C

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
According to the American College of Cardiology, women who did not smoke, who had a BMI which was within the normal range, who exercised for 2 and a half hours every week, ate a healthy diet, did not drink alcohol and watched one hour less of TV every day, had a 92% lower risk of coronary heart disease.

- **Watch your Waist**: A waist size of higher than 35 for women and 40 for men increases the risk for coronary heart disease.
- **Include cocoa**: A study in Italy showed that people who ate three portions of chocolate a day cut myocardial disease risk by 77% when compared to people who ate less than one portion a day.
- **Eat healthy meals**: Replace ½ cup of cheese with ½ cup of beans in your wrap to cut down about 100 calories. Trimming your meals and including healthier options is good for your heart and waist.
- **Include Omega 3 fatty acids**: Omega 3 fatty acids are good for heart health. The American Heart Association recommends eating fish at least twice a week. The Mediterranean diet which includes fruits, whole grains, vegetables, fish, legumes and olive oil, is good for heart health.
- **Quit Smoking**: According to the Centre for Disease Control (CDC), smoking causes one of three deaths due to cardiovascular disease. So quit smoking or if you don't smoke, do not start.
- **Learn to Relax**: Working for 55 hours in a week for a period of 10 years increases the risk for heart disease by 16% while working for 60 hours per week can increase risk by 30%.

Genes analyzed: *GATA6, LPL, APOC3, DNAJC5B, CD36, PLPP3, CUX2, MIA3, ASIC2, PHACTR1, FMN2, PECAM1, TFPI, ASZ1, CDH13, CHRDL1, BTD, BCAP29, HECTD4, TTC41P, SMG6, CNNM2, CDKN2B-AS1, LIPA, ANKS1A, HNF1A, MRAS, KIAA1462, HHIPL1, LPA, UBE2Z, ALDH2, ATP2B1, STK32B, GATA4, STX18-AS1, PIGL, NKX2-5, JAG1*

4. HYPERTENSION

Mild: Likely low genetic risk for hypertension

Hypertension is a medical term for a condition that is characterized by a persistently elevated blood pressure in the arteries. 90% of hypertension incidences are due to poor lifestyle choices and genetic factors, while 5 to 10% may be due to an underlying medical condition. The normal blood pressure for adults at rest is between 100–140 millimeters mercury (mmHg) systolic and 60–90 mmHg diastolic. A blood pressure at or over 140/90 mmHg is considered high blood pressure. People of certain genetic types are at a higher risk of having hypertension and should watch out for symptoms like: **dizzy spells or headaches during spikes.**

Gene markers analyzed: 139
Gene markers present in your genome data: 131
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Lose weight**: Maintaining a healthy weight can help control blood pressure. Losing even 10 pounds can lower blood pressure.
- **Watch how much caffeine your drink**: Some people metabolize caffeine slowly and this can increase their blood pressure. Such people would benefit from drinking caffeine in moderation.
- **Salt sensitivity**: Some people are highly sensitive to salt in their diet and could lower their blood pressure considerably on a low salt diet, such people would benefit from cutting down salt in their diet.
- **Include whole grains**: Include a lot of whole grains in the diet and cut down on processed food.
- **Exercise regularly**: Regular exercise of half an hour a day can reduce blood pressure by 4 to 9 points. Exercise is not restricted to time at the gym but can include physical activities like gardening or walking to work.
- **DASH diet**: The Dietary Approaches to Stop Hypertension (DASH) is one of the best diets to manage high blood pressure and it includes controlling alcohol consumptions, cutting down on caffeine and restricting high fat foods and including plenty of whole grains.
- **Get Sufficient Sleep**: Insomnia or lack of sleep could increase blood pressure. Try to create a bed time routine, switch of all electronic gadgets an hour before bed time, do not drink caffeinated beverages post dinner or wear ear plugs and eye pads to restrict noise and light for a peaceful sleep.

Genes analyzed: *PPARG, OGDH, LINC00670, ITPR1, CFDP1, ITGA11, GUCY1A3, CSK, MTHFR, ATP2B1, PLEKHA7, ARHGAP42, BAG6, PLCE1, CACNA1D, BMPR2, SMAD9, GBA, SARS2, AGTR1, AGT, XRCC4, MSRA, OPRM1, BMPR1B, GPR39, CAPZA1, UMOD, ZFAT, MACROD2, MYO6, SOX6, SLC12A9, ACVRL1, ENG, NGF, HIVEP2, CACNB2, BDNF, C10orf107, MOV10, TAP2, ULK4, DAPK1, MYO16, NT5C2, PLEKHG1, HIST1H1T, NOV, FES, CDH13, MAP4, MECOM, ZNF831, STK39, CASZ1, LOC101927697*

5. STROKE

Mild: Likely low genetic risk for stroke

Stroke is a medical condition in which blood flow to specific regions of the brain is cut off resulting in cell death. Stroke symptoms can be identified only by a qualified cardiologist. People of certain genetic types are at a higher risk for stroke and should watch out for signs that include: **face drooping, weakness in the arm and speech difficulty.**

Gene markers analyzed: 37
Gene markers present in your genome data: 32
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition

- **Mediterranean diet**: A mediterranean diet has been shown to lower the risk of stroke even among people with a high genetic risk. In another study conducted on 15,000 people, including healthy foods from a mediterranean diet was found to be more important in lowering risk of stroke than avoiding unhealthy food.
- **Antioxidant rich foods**: In a study conducted on 31,000 women, healthy women with highest antioxidant intake had a 17% reduction in stroke. While among women with a history of cardiovascular disease, there was a 57% reduction in hemorrhagic stroke among those with highest antioxidant intake.
- **Vitamin C intake**: In a study conducted on the benefits of vitamin C intake and stroke, it was found that on an average, people who had a stroke had depleted levels of vitamin C.
- **Chocolate and stroke**: In a study conducted on 37,000 Swedish men, chocolate consumption was found to be associated with reduction in risk of stroke.
- **Modify lifestyle factors**: Modifying lifestyle factors will help in lowering the risk for stroke and these include quitting smoking, heavy consumption of alcohol, high fat and high salt rich diet as well as lack of exercise.

Genes analyzed: *TRIM29, SPSB4, ZFHX3, HDAC9, IMPA2, AIM1, CACNB2, CTD-2151A2.1, NDUFS1, F2, FUT8, PTPRG, NAA25, TWIST1, EDNRA, WDR12, PHACTR1, F5, FBN1*

6. THROMBOSIS

Mild: Likely low genetic risk for thrombosis

Thrombosis is the development of blood clots in a blood vessel, resulting in obstruction in the flow of blood. The prevalence of thrombosis among adults is about 1 in 1000 people. People of certain genetic types are at a higher risk of developing thrombosis and may exhibit symptoms like: **pain, swelling in the affected region, tenderness or immobility.**

Gene markers analyzed: 7
Gene markers present in your genome data: 5
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
- **Avoid a sedentary lifestyle**: Don't sit still for too long, this is especially true for people who travel long distances. Exercising the extremities by stretching the feet or standing for a period of time will help. Try to get back on the feet as soon as possible after a surgery. Studies have shown that the risk of thrombosis is 10% to 40% for general surgical patients while it is 40% to 60% for major orthopedic patients.
- **Maintain a healthy weight**: Being overweight has been associated with an increased risk of thrombosis.
- **Menopause and changes in hormone**: Changes in hormone levels, even in the form of consumption of birth control pills or hormone replacement therapy are associated with an increased risk of blood clotting.
- **Quit Smoking**: Smoking is associated with an increased risk of blood clotting. Therefore quit smoking.

Genes analyzed: *F2, F13B, F13A1, F5*

7. ATRIAL FIBRILLATION

Mild: Likely low genetic risk for atrial fibrillation

Atrial fibrillation is a heart condition in which there is an irregular heartbeat with increased heart rate. The prevalence of this condition ranges between 0.2 to 0.4 per 1000 people. People of certain genetic types are at a higher risk of developing this condition and may exhibit symptoms like: **dizziness, increased heart rate, shortness of breath, palpitations and weakness.**

Gene markers analyzed: 59
Gene markers present in your genome data: 50
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Maintain a healthy weight**: Maintaining a healthy weight is essential to lowering the risk for atrial fibrillation. People who are overweight are at 20 to 30% increased risk of developing the condition while people who are obese are at a 60% increased risk of developing atrial fibrillation.
- **Get sufficient exercise**: Exercise helps the body shed the extra weight and it also helps in lowering the risk for atrial fibrillation. Though exercise is a prerequisite, excessive exercise could increase risk.
- **Avoid binge drinking**: Studies have shown that drinking 5 to 6 cups of alcohol within a span of two hours could increase the risk for atrial fibrillation. Some recent studies have shown however, that drinking even as low as 2 cups per day could increase risk. Overconsuming alcohol is also known to increase risk of weight gain and blood pressure, therefore, moderation will help lower risk.
- **Increase intake of fish**: Some studies indicate that consuming fish twice or thrice a week can considerably lower the risk for atrial fibrillation.

Genes analyzed: *NEBL, KCNN3, PKP2, ZFHX3, LY96, MYBPC3, KCNA5, KCNE2, ABCC9, KCNQ1, SCN5A, KCNH2, KCNJ2, SCN3B, GJA5, ASAH1, WNT8A, CUX2, CAV1, C9orf3, HCN4*

8. CARDIOMYOPATHY

Moderate: Likely moderate genetic risk for cardiomyopathy

Cardiomyopathy is a disease of the heart muscles. The prevalence of this condition is 1 in 500 people. People of certain genetic types are at an increased risk of developing cardiomyopathy and may exhibit symptoms like : **Chest pain, fatigue, dizziness, shortness of breath or weight gain.**

Gene markers analyzed: 1399
Gene markers present in your genome data: 1098
Potential risk variants detected in your genome data: 8
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Follow a healthy diet**: Eat a diet that is rich in fruits, vegetables and whole grain. Choose lean meats and fish to improve health. Keep a tab on the amount of sodium that is consumed, as it could increase blood pressure. Stay away from foods that are rich in saturated fat.
- **Remain active**: Exercise is very important for heart health, but the type of exercise and duration should be determined on consultation with a physician. Over a period of time, exercise will help in lowering blood pressure.
- **Keep blood pressure undercheck**: Cardiomyopathy is accelerated due to underlying health conditions like elevated blood pressure and heart disease. Check blood pressure routinely using a sphygmomanometer.
- **Maintain a healthy weight**: Obesity increases the risk for cardiomyopathy. Make suitable changes to diet and exercise to maintain a healthy weight.
- **Get sufficient rest**: Sleep well during the night and avoid overexertion

Genes analyzed: *MYBPC3, TPM1, TNNI3, PRKAG2, MYH7, MYL2, ILK, TNNT2, MYL3, DSP, NEBL, CTNNA3, LMNA, TTN, FHL2, DES, VCL, TXNRD2, RAF1, LDB3, DTNA, PDLIM3, MYOM1, JPH2, NEXN, CALR3, MYOZ2, MYH6, TNNC1, CSRP3, MYLK2, SCN5A, FKTN, DNAAF3, TNNT1, RBM20, BAG3, ACTN2, PSEN2, PSEN1, ANKRD1, TMPO, DMD, TCAP, PRDM16, SGCD, MYPN, LAMA4, CRYAB, DNAJB6, ZBTB17, LAMP2, LOC101929515, TIAM1, AGK, RYR2, DSC2, GATAD1, XPC, TMEM43, JUP, PKP2, ABCC9, EMD, DSG2, ALMS1*

9. HYPERTRIGLYCERIDEMIA

Mild: Likely low genetic risk for hypertriglyceridemia

Hypertriglyceridemia is a medical condition in which there is elevated levels of triglycerides. The prevalence of severe hypertriglyceridemia is about 2 in 10,000 persons. People of certain genetic types are at a higher risk of developing hypertriglyceridemia and may exhibit symptoms like: **xanthomas, pancreatitis, lipemia retinalis.**

Gene markers analyzed: 10
Gene markers present in your genome data: 8
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Include niacin rich foods**: Niacin has been found to lower triglycerides by 30 to 50 %, LDL by 5 to 25% and increase HDL by 20 to 30%. Niacin supplements may be advised for high risk patients, starting on a low dose with gradual increase.
- **Check for underlying disease conditions**: Fatty liver disease is associated with an increased risk for hypertriglyceridemia, especially among people who are obese and have insulin resistance.
- **Consume a diet low in saturated fats**: Foods that are rich in saturated fats should be restricted. Instead a diet rich in fruits, vegetables and whole grains should be consumed.
- **Exercise Regularly**: Regular exercise helps in lowering triglyceride levels
- **Restrict Alcohol consumption**: Alcohol is known to affect lipolysis and this could lead to increased plasma triglycerides.
- **Pregnancy**: Triglyceride levels are found to increase three-fold during the third trimester of pregnancy. Eat healthy foods and follow diet and exercise regimen as provided by a physician.

Genes analyzed: *APOA5, LIPI, PHYHIP, BAZ1B, TMEM241, APOE*

10. FAMILIAL HYPERCHOLESTEROLEMIA

Mild: Likely low genetic risk for FH

Familial hypercholesterolemia (FH) is characterised by an inability of the body to remove low density lipoprotein. The global prevalence of familial hypercholesterolemia is 10 million. People of certain genetic types have a higher risk of developing this condition and may exhibit symptoms that include: **fatty skin deposits called xanthomas present on hands, elbows, knees and in the cornea of the eye, deposits of cholesterol in the eyelids and signs of coronary artery disease like chest pain.**

Gene markers analyzed: 125
Gene markers present in your genome data: 81
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
People with familial hypercholesterolemia have a 5 times increased risk of heart disease.
• **Low fat diet**: A diet low in saturated fat and cholesterol is the first step to managing familial hypercholesterolemia.
• **Include plant sterols**: Studies indicate that plant sterols and stanols are associated with reducing blood cholesterol. Rice, corn and vegetable oil contain plant sterols and stanols.
• **Medications**: A qualified physician will prescribe medications to lower cholesterol levels in the body.
• **Quit Smoking**: Smoking makes cholesterol 'stick' to arterial walls, which can be avoided by quitting smoking.

Genes analyzed: *APOB, LDLR, LDLRAP1, PCSK9, STAP1, ABCA1*

11. NON-ALCOHOLIC FATTY LIVER DISEASE

Moderate: Likely moderate genetic risk for NAFLD

Non alcoholic fatty liver disease is a type of fatty liver disease which is characterised by deposition of fat in the liver due to causes other than alcohol. The prevalence of non alcoholic fatty liver disease has risen in the United States from 18% in 1991 to 31% in 2012. People of certain genetic types are at a higher risk developing non alcoholic fatty liver and should watch out for symptoms that include: **enlarged blood vessels, abdominal swelling, enlarged liver, pain in the upper right abdomen and unexplained weight loss.**

Gene markers analyzed: 23
Gene markers present in your genome data: 23
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Maintain a healthy weight**: The prevalence of non alcoholic fatty liver disease is much higher among obese individuals (80-90%) when compared to the general population. Therefore, maintain a healthy weight. Reduce intake of fructose rich food sources like sodas, fruit juices and soft drinks. Studies have shown that gradual weight reduction along with an increase in physical activity improve liver enzymes, insulin sensitivity and quality of life.
• **Increase intake of antioxidants**: Antioxidant rich foods, including vitamin E and betaine, have been associated with a decrease in risk for non alcoholic fatty liver disease in various pilot studies.
• **Restrict intake of high fatty foods**: The genetic variant associated with an increased risk for non alcoholic fatty liver disease is also associated with poor metabolism of triglycerides. Elevated blood triglyceride levels are associated with insulin resistance and fatty liver.

Genes analyzed: *SLC38A8, LOC643339, SLC9A9, MACROD2, SEL1L3, ST8SIA1, EHBP1L1, COL13A1, FARP1, DCLK1, PNPLA3*

12. HYPOTHYROIDISM

Moderate: Likely moderate genetic risk for hypothyroidism

Hypothyroidism is an endocrine disorder in which the thyroid gland does not produce sufficient amount of thyroid hormone. In the U.S, the prevalence of hypothyroidism is 4.6%, with women being more commonly affected. People of certain genetic types are at a higher risk of developing hypothyroidism and may exhibit symptoms like: **weight gain, puffy face, dry skin, fatigue, lethargy or hair loss.**

Gene markers analyzed: 49
Gene markers present in your genome data: 42
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Increase Iodine intake**: Low iodine intake is associated with increased risk of hypothyroidism, though this is not one of the common reasons in developed nations.
- **Lower risk of infection**: Studies have shown that microbial antigens could mimic thyroid autoantibody and lead to increased risk of hypothyroidism.
- **Quit Smoking**: Smoking is an important risk factor in the development of hypothyroidism. Quitting will help in lowering risk for the condition.
- **Learn to manage stress levels**: Stress can lead to inflammation and trigger autoimmune conditions like hypothyroidism. Learn to cope with stress by better time management and stay away from triggers.
- **Increase screening**: People who are at high risk of getting hypothyroidism should get tested to identify the condition at an early stage. Many people have subclinical condition, in which the symptoms do not show up. According to the American Thyroid Association, everyone over the age of 60 years should get tested for the condition.
- **Lower Homocysteine Levels**: People with hypothyroidism are associated with increased homocysteine levels. Sufficient intake of folate will help in lowering homocysteine levels and help lower the risk of hypothyroidism.

Genes analyzed: *TSHB, LINC00327, ZNF804B, MTF1, ZBTB10, VAV3, TSHR, RET, DUOX2, TPO, IYD, NKX2-5*

13. MIGRAINE

Mild: Likely low genetic risk for migraine

Migraine is recurrent headaches that range from being mild to severe. The global prevalence of migraine is 14.7%, which is 1 in 7 people. People of certain genetic types are at a higher risk of developing migraine and may exhibit symptoms including: **'drilling' headache, nausea, sensitivity to sound and light.**

Gene markers analyzed: 40
Gene markers present in your genome data: 37
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
- **Follow a sleep routine**: Sleep at the same time and wake up at the same time everyday, irrespective of whether it is at weekends or during weekdays. Too much sleep or insufficient sleep could trigger a migraine.
- **Exercise at moderate intensity**: Exercising at moderate intensity has been found to lower the intensity of migraine, however, high intensity exercise could trigger migraines.
- **Learn to relax:** Stress is one of the biggest triggers of migraine, so go for a walk, meditate, listen to music or do yoga to relax.
- **Eat at regular intervals**: Drop in blood sugar levels are known to trigger migraine, so eat at regular intervals.
- **Medications**: Your doctor may prescribe analgesics or specific drugs with vasoconstrictor properties.

Genes analyzed: *FHL5, HCG20, TRPM8, BPIFC, LIMCH1, NBEA, PTPRD, MEF2D, SUGCT, IGLL1, MMP17, ZDHHC6, TGFB1, MRVI1, HPSE2, NRP1, HJURP, MARCH4, LRP1, LOC101927066, PRDM16, ASTN2, ATP1A2*

14. OSTEOARTHRITIS

Mild: Likely low genetic risk for osteoarthritis

Osteoarthritis is a disorder which is characterised by breakdown of the joint cartilage and the underlying bone. According to the Global Burden of Disease 2010, the prevalence of hip osteoarthritis was 0.85% while that of knee osteoarthritis was 3.8%. People of certain genetic types are at a higher risk of developing osteoarthritis and may exhibit symptoms like: **joint stiffness, swelling, crackling, bony outgrowth or bump on the finger.**

Gene markers analyzed: 14
Gene markers present in your genome data: 14
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Maintain a healthy weight**: Studies have shown that weight loss among overweight women could lower the risk for osteoarthritis. In the Framingham study, loss of 2 units or more of BMI was associated with 50% reduction in risk of osteoarthritis.
• **Hydrate well**: Joints need lubrication to move smoothly, therefore drinking at least 9 to 12 glasses of water everyday will help lower osteoarthritis pain.
• **Control blood sugar**: Diabetes is known to lead to generalised inflammation which could lead to the loss of cartilage. Studies show that nearly half of Americans who have been diagnosed with diabetes also have osteoarthritis.
• **Stretch**: Improve joint flexibility by carrying out stretching exercises every day, especially before exercise. This might not lower the risk for osteoarthritis but will help lower muscular spasms due to the condition.
• **Choose a flat, soft surface to exercise**: Exercising on a hard floor could be jarring for the joints. Therefore, choosing a grass surface to exercise is preferable.
• **Run moderately**: Running does not cause osteoarthritis, however, among people who are predisposed to it, running could contribute to the condition.

Genes analyzed: *FRZB, CRTC1, CSMD1, CAMK2B, ALDH1A2, FTO, MCF2L, GDF5*

15. OSTEOPOROSIS

Mild: Likely low genetic risk for osteoporosis

Osteoporosis is a condition in which bones become fragile and prone to fractures. Currently over 200 million people across the world suffer from osteoporosis, with over 30% of postmenopausal women in the United States and Europe with osteoporosis. People of certain genetic types are at a higher risk of developing osteoporosis with symptoms that include: **back pain, stooped posture or loss of height over time.**

Gene markers analyzed: 16
Gene markers present in your genome data: 13
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Include calcium in combination with Vitamin D supplementation:** A minimum dose of 800 I.U of vitamin D and 1200 mg of Calcium are recommended as a preventive treatment for osteoporosis for people over 50 years of age.
• **Check homocysteine levels**: High homocysteine levels are associated with an increased risk for osteoporosis.
• **Cut down on alcohol consumption**: Studies have shown that chronic heavy alcohol consumption could increase the risk for osteoporosis.
• **Exercise**: Studies have shown that weight bearing exercises are effective in preventing bone mineral loss among postmenopausal women. Walking is effective for the hip, while weight bearing exercises are effective for the lumbar spine as well as the hip.
• **Vitamin K supplementation**: Supplementation with vitamin K, according to studies, has been associated with a reduction in the occurrence of fractures among people with osteoporosis.

Genes analyzed: *OSBPL1A, COLEC10, LRP5, ALDH7A1, FTCDNL1, MECOM, SLC9A3R1, SLC34A1, F12*

16. BONE MINERAL DENSITY

Mild: Likely low genetic risk for low bone mineral density

Bone mineral density (BMD) is the amount of bone mineral in bone tissue. The higher the bone mineral strength, the stronger the bones are. BMD is highly heritable according to many research studies. People of certain genetic types are at a higher risk of low bone mineral density and thereby at risk for osteoporosis or fractures.

Gene markers analyzed: 106
Gene markers present in your genome data: 97
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
Bones are the major support system for the body and finding out early if you need to provide them with extra nourishment will help you lower the risk of brittle bones as you age.

- **Include calcium**: Calcium is the most abundant mineral in the body with 99% of this mineral present in teeth and bones. Include sufficient amount of calcium in the diet.
- **Include Vitamin D and K**: Studies have shown that Vitamin D increases the absorption of calcium from the intestines while Vitamin K lowers secretion of calcium.
- **Exercise for better bone health**: A study conducted on college going students showed that athletes with low body weight had better bone mineral density than others. Weight bearing exercises are ideal for better bone health like walking, stair climbing, running and jumping rope.
- **Control caffeine intake**: Consuming more than 2 cups of coffee per day has been shown to be associated with increased bone loss among people who consumed low amounts of calcium.

Genes analyzed: *COL1A1, CALCR, COLEC10, C17orf53, ESR1, LOC102724957, C7orf76, CRHR1-IT1-CRHR1, XKR9, RBMS3, ADAMTS18, LOC100133286, LOC105376360, NME8, GPATCH1, MARK3, MEF2C, RPS6KA5, CPED1, DCDC5, CLDN14, MAPT, CCDC170, SP7, JAG1, LEKR1, LRP5, IDUA, WNT16, MPP7, SMG6, DNM3, FAM210A, CPN1, ABCF2, FUBP3, TNFRSF11A, FAM3C, FMN2*

17. GALLSTONE DISEASE

Mild: Likely low genetic risk for gallstones

Gallstones are hardened deposits of digestive fluid that are formed in the gallbladder. The prevalence of gallstones was 4.15%, more in females than in males. People of certain genetic types are at a higher risk of developing gallstones than others and may exhibit symptoms like: **Abdominal cramping or discomfort,nausea or vomiting.**

Gene markers analyzed: 2
Gene markers present in your genome data: 2
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Maintain a healthy weight**: Obesity is one of the important factors that increase the risk for gallstones. Increased weight accelerates cholesterol secretion by the liver which increases the risk for gallstones. The presence of fat around the waist increases the risk of gallstones among women.
- **Lose weight gradually**: Rapid weight loss leads to the development of gallstones in about 10 to 25% of people on a slimming procedure.
- **Follow good dietary practices**: A diet rich in fibre and calcium lowers the risk for gallstones. Regular mealtimes are another important factor. Some studies claim that moderate alcohol intake lowers the risk for gallstones, however, alcohol can increase the risk for other metabolic diseases.
- **High risk environmental factors**: Pregnant women or people who undertake prolonged fasting are at an increased risk for gallstones. Women who undertake hormone therapy are also at an increased risk for gallstones.

Genes analyzed: *SULT2A1*

18. CHRONIC KIDNEY DISEASE

Mild: Likely low genetic risk for chronic kidney disease

Chronic kidney disease (CKD) is a gradual loss of kidney function. According to The National Kidney Foundation, 10% of the global population suffers from chronic kidney disease. People of certain genetic types have a higher risk of developing chronic kidney disease and may exhibit symptoms like : **fatigue, loss of appetite, malaise, weight loss, itching, insufficient urine production.**

Gene markers analyzed: 18
Gene markers present in your genome data: 17
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Maintain a healthy weight**: Obesity is one of the major factors associated with chronic kidney disease. In a study conducted to identify the effect of obesity on chronic kidney disease, it was found that people with a BMI > 25 at age 20 years had a significant 3 fold increased risk of developing CKD.
• **Smoking**: In a study conducted on 7476 non diabetic individuals, it was found that smoking more than 20 cigarettes per day increased the risk for CKD. Another similar study showed that smoking more than 5 cigarettes per day increased serum creatinine by 31%.
• **Nephrotoxins**: The excessive use of analgesics have also been shown to increase the risk for chronic kidney disease. One study showed that people who consumed between 1000 to 4999 pills during their lifetime had a 2 fold increased risk of CKD while people who consumed more than 5000 pills during their lifetime had a 2.4 times increased risk of CKD. Alcohol consumption and the use of recreational drugs that contain mercury have also been associated with CKD.
• **Diabetes mellitus**: Diabetes is an independent risk factor for CKD due to advanced glycation end products, hyperfiltration injury and reactive oxygen species. Nearly 50% of people diagnosed with type 2 diabetes will develop diabetic nephropathy while 10% of these will develop progressive loss of renal function.
• **Acute Kidney Injury**: Studies have shown that acute kidney injury increases the risk for end stage kidney disease by 10 fold.
• **Control blood pressure**: Hypertension is an important risk factor for chronic kidney disease and it accounts for nearly 28% of all end stage renal disease patients in the U.S.

Genes analyzed: *ZNF343, UMOD, MADD, SLC22A2, TFDP2, SLC13A3, DACH1, SLC34A1, CST3*

19. AGE-RELATED MACULAR DEGENERATION

Mild: Likely low genetic risk for AMD

Age related macular degeneration is a condition in which there is blurring of sight or loss of central vision. According to the Centres of Disease Control and Prevention (CDC) , there are 1.8 million people with AMD. People of certain genetic types are at a higher risk of developing AMD and may exhibit the following symptoms: **sudden or a gradual change in the quality of vision, straight lines could appear distorted, difficulty or loss of vision in dim light and leading to drastic loss in central vision.**

Gene markers analyzed: 72
Gene markers present in your genome data: 66
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Quit Smoking**: Smoking is an important risk factor for age related macular degeneration and if you do not smoke, don't start. According to a study published in the British Journal of Medicine, 53,900 residents of UK, below the age of 69, were shown to have AMD attributable to smoking, with 17800 amongst them going blind.
• **Eat fruits and Vegetables rich in Carotenoids**: The Nurses' health study that followed 63,443 women and 38,603 men found that there was a 40% reduction in AMD risk among individuals who consumed high amount of carotenoid rich food.
• **Take AREDS nutritional supplement**: The Age Related Eye Disease Study (AREDS) sponsored by the National Eye Institute found that specific doses of vitamin C, vitamin E, Zinc and Beta Carotene lowered the progression of AMD. The AREDS nutritional supplement includes: vitamin C - 500 mg, vitamin E - 400 IU, beta-carotene - 15 mg, zinc - 80 mg (as zinc oxide), copper - 2 mg (as cupric oxide).
• **Exercise Regularly**: A 15 year follow up study conducted by the University of Wisconsin showed that physical activity had a protective effect on AMD.
• **Eat a lot of fish**: A study by the researchers from The University of Sydney, on 2900 people over 49 years, showed that people who ate fish at least once a week had 40% lower risk of developing AMD.

Genes analyzed: *ABCA4, C9, FGD6, SLC44A4, CETP, C3, APOE, ARMS2, HTRA1, RAX2, CFH, FBLN5, CFB, CX3CR1, GLI3, CLIC5, COL8A1, REST, FRK, NOTCH4, TGFBR1, SKIV2L, MCUB, RAD51B, B3GLCT, SYN3, LIPC*

20. GLAUCOMA

Moderate: Likely moderate genetic risk for glaucoma

Glaucoma is a condition in which the fluid pressure of the eye increases. Approximately 3 million Americans suffer from glaucoma, however, only about a half of them know that they have it. People of certain genetic types have a higher risk of developing glaucoma and may exhibit symptoms like : **Blurred or hazy vision, rainbow like circles around bright lights, severe pain in the eye, nausea or vomiting.**

Gene markers analyzed: 65
Gene markers present in your genome data: 55
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Drink hot tea every day**: A study published in the British Medical Journal found that drinking hot tea everyday lowered the risk for glaucoma. The risk lowering effect was not noticed on consumption of hot coffee, iced tea or drinking other beverages.
- **Eat a diet rich in fruits and vegetables**. Fruits that are rich in vitamin A and C like carrots, green beans, collard beans, spinach, Kale are known to lower the risk of glaucoma. Antioxidant rich foods like pomegranate, acai berry, cranberries, lycopene and flax seeds.
- **Maintain Homocysteine levels**: Ensure that homocysteine levels are low as high homocysteine levels have also been associated with an increased risk of glaucoma.
- **Control for other risk factors**: Risk factors for glaucoma also include high blood pressure, high myopia, injury during eye surgery and diabetes. Control for these risk factors.

Genes analyzed: *WDR36, LTBP2, CYP1B1, MYOC, NTF4, ASB10, CDKN2B-AS1, GMDS, AFAP1, TXNRD2, EPDR1, COL11A1, PLEKHA7, DERA, SRBD1, DNAJC24, TBC1D21, LOXL1, OPTN*

21. CONE-ROD DYSTROPHY

Moderate: Likely moderate genetic risk for cone rod dystrophy

Cone rod dystrophy is an inherited disorder of the eye. The prevalence of this condition is 1 in 40,000 people. People of certain genetic types are at a higher risk of developing cone rod dystrophy and may exhibit symptoms like: poor clarity of vision, color vision problems, night blindness and loss of peripheral vision.

Gene markers analyzed: 89
Gene markers present in your genome data: 72
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition. There is no known treatment for this condition, but the following could help in delaying vision loss.

- **Avoid bright light**: People with this condition have an increased sensitivity to light and would benefit from avoiding bright light. Wearing sunglasses when stepping out into the sun may be comforting.
- **Use low Vision Devices**: Hand-held magnifying glasses could help in better vision and lower strain to the eyes.
- **Nutrition to support the photoreceptors:** Increased intake of carotenoids lutein and zeaxanthin, omega 3 fatty acids, taurine and vitamin C protect the photoreceptors. The antioxidant properties of bilberry extract is also known to protect against photooxidation of the retinal cells.
- **Microcurrent stimulation**: This procedure can be carried out to lower pain and to improve circulation in the retina.
- **Avoid drugs like viagra**: Men who are at a higher risk of developing this condition should avoid drugs like viagra as it prevents the synthesis of an enzyme associated with vision

Genes analyzed: *GUCA1B, GUCA1A, SEMA4A, CDHR1, ABCA4, RPGRIP1, ADAM9, PROM1, PITPNM3, RIMS1, CRX, CACNA1F, CNNM4, GUCY2D, DRAM2, POC1B, C8orf37, PDE6C*

22. CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Moderate: Likely moderate genetic risk for COPD.

Chronic obstructive pulmonary disease is a progressive lung disease which is characterised by breathlessness. This includes, emphysema, bronchitis and asthma. According to WHO, 251 million cases of COPD existed in 2016. People of certain genetic types have a higher risk of developing chronic obstructive pulmonary disease and may exhibit the following symptoms: **Shortness of breath, wheezing, frequent respiratory infections, inability to exercise and chest tightness.**

Gene markers analyzed: 38
Gene markers present in your genome data: 36
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Quit Smoking**: Smoking is the single most important factor which has been associated with an increased risk for chronic obstructive pulmonary diseases. People who smoke have 12 times higher risk of developing this condition when compared with people who do not smoke. If you are not a smoker, do not start and avoid second-hand smoke.
• **Avoid smoke**: Avoid smoke from unventilated wood houses or smoke from cooking over firewood. Smoke from biomass has also been known to increase the risk for chronic obstructive pulmonary disease.
• **Restrict Occupational Exposure**: Studies have shown that 20% of COPD cases are due to occupational exposure. Miners who work with Gold and Cadmium have been found to have the highest risk.
• **Watch out for allergens**: When there is an increase in outdoor air pollutants like smog, stay indoors. Keep indoors free from second hand smoke and other pollutants.

Genes analyzed: *P2RX7, KAZN, RNF150, ASRGL1, PSORS1C1, SCGB1A1, SFTPD, TMEM254, ATP2C2, RIN3, FAM13A, IREB2, ELOVL4, NUPL2, PPP4R4, HTR4, CYS1, HSPA12A*

23. ASTHMA

Moderate: Likely moderate genetic risk for asthma

Asthma is a common chronic inflammatory condition of the airways of the lungs. According to CDC, 25.7 million people across the world suffered from asthma in 2010. People of certain genetic types are at a higher risk of developing asthma and may exhibit the following symptoms: **wheezing, chest pain, difficulty in breathing and coughing.**

Gene markers analyzed: 72
Gene markers present in your genome data: 67
Potential risk variants detected in your genome data: 3
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Avoid allergens and triggers**: Allergens present in the air may trigger an asthma attack as they could lead to inflammation of the airways. Identify these allergens and avoid them.
• **Use room humidifiers**: Adding some moisture to the air can ease symptoms of asthma, but too much moisture could increase the risk of dust mite growth.
• **Use air filters**: Air filters, especially the ones that include high efficiency particulate air filter, have been found to remove 99.97% of allergens that are at least 0.37 microns.
• **Mediterranean diet**: A mediterranean diet has been found to be associated with a lower risk of asthma.

Genes analyzed: *IL13, MS4A2, HNMT, ADRB2, TLR1, CLEC16A, GSDMA, PLA2G7, DCLK1, TRPM8, HPSE2, CDHR3, IL33, RAD50, RORA, PTGES, SLC22A5, GAB1, IL1RL1, PYHIN1, GSDMB, PDE4D, PBX2, IL2RB, CRB1, IL18R1, NOTCH4, LOC101928947, HLA-DQB1-AS1*

24. ALZHEIMER'S DISEASE

Moderate: Likely moderate genetic risk for alzheimer's disease

Alzheimer's disease is a progressive neurodegenerative disorder, constituting 60 to 70% of dementia incidences. Approximately 200,000 Americans younger than 65 years of age have early onset Alzheimer's disease. People of certain genetic types have a higher risk of developing Alzheimer's disease and may exhibit symptoms like: **difficulty in remembering, confusion, disorientation and speech difficulties.**

Gene markers analyzed: 94
Gene markers present in your genome data: 86
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Ensure social engagement**: Staying socially active is found to be protective against alzheimer's disease. Older individuals tend to shy away from meeting people, which could increase their risk for the condition. Try to join volunteer groups and social clubs to improve social contact.
• **Exercise regularly**: Alzheimer's research and prevention foundation states that regular exercise can lower the risk of alzheimer's by 50%.
• **Engage in mentally stimulating activities**: An NIH Active study showed that older adults who were associated with at least 10 sessions of training showed improved cognitive function which was evident even 10 years later.
• **Enjoy good quality sleep:** Studies have shown that poor sleep could increase the risk of beta amyloid plaques and thereby increase the risk of alzheimer's.
• **Eat a diet rich in omega 3 fatty acids**: The docosahexaenoic acid (DHA) found in omega 3 fatty acids have been found to be associated with reduction in beta amyloid plaques and lowering the risk of alzheimer's disease and dementia.

Genes analyzed: *SYNGAP1, ZNF292, SLCO3A1, SUCLG2, PSEN1, PEX6, CR1, SH2D4B, CLU, GLIS3, TOMM40, ARHGAP20, PARVB, PRRC2C, ST18, SP6, MOBP, CSMD1, CAMK4, STK32B, AFF1, GABRG3, SPON1, LOC100289673, CLMN, CACNA1G, SAP30L, MYO16, TGM6, ANKRD55, BZW2, CRADD, CTNNA2, BCAS3, PPP1R3B, TREM2, CNTNAP2, POLN, RNF6, PCDH11X, STK24, PICALM, ABCA7, MS4A6A, NECTIN2, FRMD4A*

25. AMYLOIDOSIS

Moderate: Likely moderate genetic risk for amyloidosis

Amyloidosis is a rare condition in which there is an abnormal buildup of a protein called amyloid. One study showed that the prevalence of this condition in the UK is 20 per million. People of certain genetic types are at a higher risk of developing amyloidosis and may exhibit symptoms like: **shortness of breath, weight loss, fatigue, bruising, swelling of the tongue, carpel tunnel syndrome and tingling feeling.**

Gene markers analyzed: 29
Gene markers present in your genome data: 23
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Help break down the amyloid protein**: Amyloid proteins are fibrous and insoluble aggregates which could build up in tissues and organs. These amyloid deposits have been shown to be broken down by pineapple enzyme and bromelain.
- **Check for underlying disease**: Certain diseases like rheumatoid arthritis could increase the risk for amyloidosis.
- **Take a break and pace yourself**: When an activity is strenuous, learn to pace it out well. Check with a physician about the appropriate level of activity that can be carried out. In people with amyloidosis, organ systems may have to work additionally hard to cope with normal activities. Therefore sufficient rest is mandatory to manage the condition.
- **Low salt diet**: Low salt diet will help in delaying the spread of the disease and will help in reducing severity.

Genes analyzed: *CCND1, LYZ, TTR, GSN, FGA*

26. ANXIETY

Mild: Likely low genetic risk for anxiety

Anxiety disorders are characterised by feelings of fear and anxiety. This disorder affects more than 40 million people in the U.S every year. People of certain genetic types are at a higher risk of developing anxiety disorders and may exhibit symptoms like: **excessive worry, sweating, hypervigilance, nausea, poor concentration or trembling.**

Gene markers analyzed: 5
Gene markers present in your genome data: 5
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Enrol for counselling sessions:** Counselling sessions will help develop coping strategies and help in addressing interpersonal problems and in stress management.
• **Cognitive behavioural therapy (CBT)**: This method of treatment is involved in addressing a specific incident that occured and developing new ways of coping with the issue. In the event that a traumatic life experience triggered the anxiety disorder, CBT will help in reframing the trauma that was experienced during the event.
• **Prolonged exposure therapy**: A qualified therapist will carefully re-introduce the 'traumatic incident' or the source of phobia, and help in understanding that the situations are no longer dangerous.
• **Caring family**: Family therapy is one the most effective methods as the family of the individual could help in creating positive feelings and removing negative thoughts through sustained and patient support.
• **Effective stress management**: Go for long walks, practice yoga or join a group exercise class, as these are known mood elevators and will help in lowering risk of anxiety disorder.

Genes analyzed: *PTPRD*

27. AUTISM

Mild: Likely low genetic risk for autism

Autism includes a range of disorders which are associated with challenges with speech, social skills, speech, repetitive behaviour and non-verbal communication. According to Centres for Disease Control and Prevention(CDC), in the U.S, 1 in 68 children surveyed were found to have autism spectrum disorder. Heritability of autism ranges from 40 to 80%. People of certain genetic types are associated with an increased risk of developing autism and may exhibit symptoms like: **learning disability, inability to focus, unaware of other's emotions, sensitivity to sound.**

Gene markers analyzed: 99
Gene markers present in your genome data: 88
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.
The interaction between genes that are susceptible and environmental factors play an important role in the development of autism.

- **Lower prenatal risk**: Factors like advanced Parental age, pre-eclampsia, gestational diabetes and maternal anxiety and stress. A study conducted in 2010 showed that there was a 29% increased risk of autism for every 10 year increase in paternal age. There was an 81% increased risk of autism associated with maternal bleeding pregnancy. Paternal psychiatric illness like schizophrenia is associated with a three fold increased risk of autism.
- **Lower Natal Risk factors**: Natal risk factors like fetal distress, umbilical cord complications or even cesarean delivery are associated with a 26% increased risk of autism.
- **Lower postnatal risk**: Some of the significant postnatal risk factors include low birth weight, postnatal infection and jaundice. A birth weight of lower than 2500 grams is associated with a two fold increased risk of autism.
- **Increase maternal intake of omega 6 and linolenic acid**: Maternal intake of polyunsaturated fatty acids like omega 3, linolenic acid,omega 6 fatty acids in the first two months of pregnancy are associated with retinal and brain development. High maternal intake of omega 6 and linolenic acid is associated with 34% lower risk of autism while consuming low levels of omega 6 fatty acids is associated with an increased risk of autism.
- **Increase folic acid intake**: High intake of folic acid during pregnancy is associated with lower speech problems, behavioural problems and hyperactivity at 8 years of age.

Genes analyzed: *PTEN, MECP2, CHD8, TSC1, RBFOX1, WWOX, CSMD1, C2orf82, PPP2R2B, KMT2A, GRIN2A, NTRK3, ZMIZ1, ZNF804A, CACNA1C, ANK3, KIF21B, ITIH3, CACNB2, CNNM2, CNOT1, BTN2A1, TSNARE1, HCN1, SHMT2, CTC-436P18.1, RGS6, CACNA1I, GIGYF2, TCF4, CNTNAP2, EN2, GLO1, PPP2R5C, TAF1C, TRIM33, MACROD2, AMPD1*

28. PARKINSON'S DISEASE

Mild: Likely low genetic risk for Parkinson's disease

Parkinson's is a neurodegenerative disorder that affects the central nervous system. This condition is found in 1% of adults over the age of 60 years. People of certain genetic types are at a higher risk of developing Parkinsons and may exhibit symptoms including: **tremor in one hand, stiffness, loss of balance, sleepiness during the day, incontinence.**

Gene markers analyzed: 78
Gene markers present in your genome data: 69
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Exercise regularly**: In a study that analyzed 43,000 adults, it was found that women who carried out at least 6 hours of activity every week had a 40% lower risk of developing Parkinson's.
• **Get help for depression**: In a study conducted on depression, it was found that there was a strong association between depression and subsequent development of Parkinson's.
• **Drink Caffeine**: Moderate consumption of caffeine- one to three cups a day- has been associated with a decrease in risk of Parkinson's.
• **Follow the right diet**: A diet high in fruits and vegetables, omega 3 fatty acids and low in red meat and dairy is shown to be associated with a lower risk of Parkinson's.

Genes analyzed: *RAB39B, CTC1, LHFPL2, ATF6, DSG3, STAP1, LINC00693, SH3GL2, GBA, LRRK2, DLG2, LOC728728, CNKSR3, LOC100287944, NUCKS1, MCCC1, SIPA1L2, CCDC62, GCH1, GAK, DGKQ, RIT2, SLC50A1, BCKDK, CNTN1, KANSL1, NSF, GPNMB, SLC2A13, WNT3, SNCA, HLA-DRA, RAB25, BST1, TMEM175*

29. SCHIZOPHRENIA

Moderate: Likely moderate genetic risk for schizophrenia

Schizophrenia is a mental disorder that occurs during late adolescence or in the early twenties. The global prevalence of schizophrenia is 1% and approximately 3.2 million Americans are known to have this disease. People of certain genetic types are at a higher risk of developing this condition and may exhibit symptoms like: **aggression, poor social behaviour, hostility and compulsive behaviour.**

Gene markers analyzed: 265
Gene markers present in your genome data: 249
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Family support**: People at high risk for schizophrenia were studied based on the extent of family support that they received. The study showed that there was a significant reduction in clinical manifestation among people who received stress reducing support from the family.
- **Aim for early detection**: When high risk individuals are screened early, they can be assigned the right therapy by the physician. Slow learners with poor social skills may be identified during schooling. A Harvard University study has shown that poor IQ is a risk factor for schizophrenia leading to false beliefs and perceptions associated with the condition.
- **Increase periods of socialising**: The condition is intensified due to social isolation, consciously improve relationship with family and friends.

Genes analyzed: *MAD1L1, CSMD1, SDCCAG8, PIK3C2A, ABCA13, COL25A1, PHACTR3, CENPM, ANK3, PTPRG, TCF4, PLCB2, HS3ST4, RUSC2, LIPC, DNAJA3, TMCO5B, CDH13, ADAMTSL3, ZFYVE28, BNIP3L, VRK2, KIF26B, PPARGC1A, HS6ST3, LINC00701, PPFIA2, CALN1, POM121L2, TMTC1, LOC101928882, TMEM182, MMP16, HLA-DOB, CPEB1, MPC2, CLCN3, GPM6A, NT5C2, GALNT10, NLGN4X, ZEB2, GRIA1, IMMP2L, ZNF804A, FHIT, HCN1, MIR137HG, MEF2C-AS1, LSM1, CNTN4, CACNB2, PLCL1, CACNA1C, TRIM26, ZNF536, PRKD1, RENBP, QPCT, BCL11B, C2orf47, MPHOSPH9, FTCDNL1, NOTCH4, DGKI, CYP26B1, SNAP91, ETF1, TSNARE1, COMT, ITIH3, ATP2A2, NRGN, CNNM2, PRRG2, SRPK2, SATB2, SLCO6A1, LINC01539, PTGIS, STAG1, IGSF9B, HHAT, BCL11A, ZSWIM6, GRAMD1B, NFATC3, FOXO3, GRIN2A, MTHFR, DRD3, HSPG2, RYR2, NLRP12, PDZRN3, RELA, GPR153, B3GNT6, GTF2IRD1, TTBK1, MEST, PTPRN2, COL4A2, PAQR5, NTM, COL28A1, SLC35F4, TTC39B, DMD, DOCK6, CELF5, CTNND2, PGPEP1, SPTLC1, NLRC5, LINC00598, GPC6, NCKAP5, FAM69A, MCC, EFNA5, COMMD10, VPS13C, NGF, BPI, RIN2, CNTNAP2*

30. BLOOM SYNDROME

Mild: Likely low genetic risk for bloom's syndrome

Bloom's syndrome is a condition characterised by an increased risk of genomic instability. Only about 265 people are believed to have this rare condition. People of certain genetic types have a higher risk of developing Bloom's syndrome and may exhibit symptoms like : **short stature, enlarged blood vessels(telangiectases) and rash on the face(cafe au lait spots) that develop during early childhood on exposure to the sun.**

Gene markers analyzed: 12
Gene markers present in your genome data: 8
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.
• **Minimize exposure to the sun**: People with Bloom syndrome have increased risk for genomic instability. Therefore exposure to the sun should be minimized on identification of cafe au lait spots. Apply a good sunscreen with a high SPF.
• **Increased risk of cancer**: People with this condition often have increased genomic instability and should ensure increased screening.

Genes analyzed: *BLM*

31. CYSTIC FIBROSIS

Mild: Likely low genetic risk for cystic fibrosis

Cystic fibrosis is an inherited condition that affects the lungs and the digestive system. The prevalence of this condition is about 1 in 2500 among caucasians. People of certain genetic types are at a higher risk of developing this condition and may exhibit symptoms like: **Abdominal pain, chronic cough with blood or phlegm, diarrhoea, shortness of breath, delayed puberty, fatigue and acute bronchitis.**

Gene markers analyzed: 377
Gene markers present in your genome data: 268
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Increase calorie intake**: people with cystic fibrosis may not have sufficient digestive enzymes to break down food. Therefore, an increase in calorie intake is necessary.
- **Drink sufficient fluids**: Fluids help in thinning the mucus present in the lungs. Drinking plenty of water is recommended.
- **Physical therapy**: Physical therapy and lung rehabilitation may be necessary to loosen the mucus present in the lungs.
- **Exercise regularly**: Exercising regularly will help in loosening the mucus present in the lungs and also for strengthening the heart. Children should participate in sports or even simple exercises like walking and stair climbing wil help.
- **Quit smoking**: Breathing in smoke can be harmful for people with cystic fibrosis. Therefore quit smoking and avoid passive smoking too.
- **Take extra care to avoid infections**: People with cystic fibrosis should be extra careful about personal hygiene to avoid infections. Though cystic fibrosis does not affect the immune system, people with this condition, especially children, develop complications. Handwashing is a simple but effective practice which could limit the risk for infections. Following the vaccination chart is another important step.

Genes analyzed: *CFTR, SCNN1A, SLC8A3, AGTR2*

32. DEPRESSION

Mild: Likely low genetic risk for depression

Depression is a serious yet common mood disorder which affects the way an individual thinks, feels and handles daily activity. According to WHO, nearly 4.4% of the global population suffers from depression. People of certain genetic types are at a higher risk of developing depression and may exhibit symptoms including: **changes in sleep, energy level, activity, mood, self esteem and concentration.**

Gene markers analyzed: 11
Gene markers present in your genome data: 11
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Handle stress well**: Find innovative ways to handle stress to lower the risk of depression. Enhancing stress resilience has been shown to decrease the risk of stress induced depression and stress can be handled effectively using psychological, spiritual, social and neurobiological ways.
• **Strain at work**: Job strain has been associated with an increased risk of depression. Alleviating this strain through re-organisation and training will help lower risk.
• **Include sufficient tryptophan**: In study subjects who had a strong family history of depression, a tryptophan deficient diet was found to lower mood. A diet rich in tryptophan will help lower the risk of depression.
• **Take care**: Get sufficient sleep, exercise well and eat well to feel good.

Genes analyzed: *TPH2, NPAS3, CAND1.11, GPHN, GRM8*

33. EPILEPSY

Mild: Likely low genetic risk for epilepsy

Epilepsy constitutes a group of disorders which are characterised by epileptic seizures. These seizures are associated with vigorous shaking, which can last from a short unnoticeable period to longer periods. According to WHO, approximately 50 million people across the world live with epilepsy.People of certain genetic types are at a higher risk of developing epilepsy and may exhibit symptoms like : **jerking movements that are uncontrollable, amnesia, anxiety, feeling of pins and needles and depression.**

Gene markers analyzed: 408
Gene markers present in your genome data: 339
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Ketogenic diet**: This diet is rich in fats and low in carbohydrates. When the main source of energy is fats, ketones are produced as a byproduct. These are also produced when there is a period of fasting. People who have epilepsy are associated with a lower risk of developing seizures when they are in a period of fasting. Therefore, it is believed that a ketogenic diet may help people with epilepsy.
- **Manage stress**: Organize the day well and include time to relax. Stay away from stressful situations or try to remain calm. An increase in stress levels could exacerbate symptoms.
- **Avoid alcohol**: Avoid alcohol intake and consume a healthy diet
- **Maintain a regular sleep schedule**: Getting a good night's rest is very important to lower the risk of seizure. Go to bed at the same time everyday and ensure that the bedroom is used only for sleeping and not for finishing assignments from work.

Genes analyzed: *CPA6, SCN1A, ALDH7A1, PRICKLE1, GOSR2, SCARB2, PRICKLE2, KCTD7, EFHC1, TBC1D24, MEF2C, EPM2A, GABRA1, RBFOX1, PNPO, GABRG2, SCN1B, KCNMA1, CACNB4, SYN1, NHLRC1, CSTB, CHRNA2, CHRNA4, LGI1, SLC2A1, CASR, CACNA1H, SPATA5, GRIN2A, DEPDC5, GABRB3, CLCN2, COTL1, MAST4, CHRM3, LOC101927235, MMP8, CAMSAP2, SCN8A, KCNT1, CNTNAP2, SCN9A, POLG, KCNQ3, CHRNB2, ST3GAL5*

34. GOUT

Mild: Likely low genetic risk for gout

Gout is a severe form of inflammatory arthritis that is characterised by the deposition of monosodium urate crystals in and around the joints. The incidence of gout is 2 to 6 times higher among men than among women. People of certain genetic types are at a high risk of developing gout and may exhibit symptoms like: **Pain in joints like ankle, knee, toe or foot, swelling, stiffness, redness or physical deformity.**

Gene markers analyzed: 15
Gene markers present in your genome data: 15
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Lower sugar intake**: People at high risk for the condition should lower intake of sugar sweetened beverages that are known to increase the risk of gout. Reduce intake of beer, meat like red meat or organ meat that are known to have high amounts of saturated fat and seafood like tuna, mackerel, trout and offal could lower risk of gout. Increase intake of coffee, cherries, omega 3 fatty acids and low fat milk which are known to marginally reduce risk.
- **Periodic screening**: The uric acid levels should be maintained at 5 to 6 mg/dl and people at high risk should get it routinely screened. Urate lowering therapy may be initiated by physicians if there are symptoms.

Genes analyzed: *FAM35A, ABCG2, MAP3K11, BCAS3, SLC2A9, KCNQ1, CYP2E1, CNIH2, SLC22A1*

35. HEMOCHROMATOSIS

Mild: Likely low genetic risk for hemochromatosis

Hemochromatosis is the leading cause of iron overload disease. The prevalence of this condition among people of Northern England origin is about 1 in 227 individuals. People of certain genetic types have a higher risk of developing hemochromatosis and may exhibit symptoms like: **lethargy, abdominal pain, reduced hormone function, arthritis, diabetes and abnormal heart rhythm.**

Gene markers analyzed: 15
Gene markers present in your genome data: 13
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Monitor your iron levels**. People at high risk for hemochromatosis should increase screening to ensure that iron levels are within normal limits.
- **Modify diet**: There are two types of iron rich foods that are consumed. Heme iron from animal sources and non-heme iron from plant sources. Heme iron gets absorbed easily while non-heme iron takes a longer time to be absorbed. Reduce consumption of red meat as it is rich in heme iron.
- **Lower intake of fatty food**: Lipids can bind to iron that is unbound and result in the development of free radicals which are known to result in diseases.
- **Limit Vitamin C supplementation**: Vitamin C enhances absorption of iron, therefore, supplementation with vitamin C should be limited to 200mg.
- **Avoid foods that are sugar rich**: Sugar rich foods are known to increase iron absorption and intake of such foods should be restricted.
- **Increase intake of foods and vegetables**: Fruits and vegetables are rich in antioxidants and fibre, which are good for reducing DNA damage and also good for digestion. Spinach contains oxalates which is also known to lower absorption of non-heme iron.
- **Drink tea or coffee during mealtimes**: Tannins present in tea, coffee and chocolates along with eggs, oxalates and fibre lower absorption of non-heme iron. However, drinking coffee or tea along with a meal does not affect absorption of iron
- **Avoid consumption of raw shellfish**: Shellfish could contain a bacterium called *Vibrio vulnifius* which thrive in iron rich sources. An infection from this bacterium is associated could be fatal for someone with hemochromatosis. Therefore, avoid going barefoot on sandy beaches or eating raw shellfish.

Genes analyzed: *HFE2, TFR2, HFE, HAMP*

36. ANEMIA

Moderate: Likely moderate genetic risk for anemia

Anemia is a condition in which there is insufficient healthy red blood cells. According to WHO, the highest prevalence of anemia is among pre-school children and the lowest is among men. People of certain genetic types are at a higher risk of developing anemia and may exhibit symptoms like: **fatigue, malaise, palpitations, brittle nails and shortness of breath.**

Gene markers analyzed: 341
Gene markers present in your genome data: 265
Potential risk variants detected in your genome data: 2
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Consume foods rich in iron**: Foods rich in iron include meat, seafood, iron fortified cereals, eggs, pulses beans, dried food and whole grains. Iron supplements should be taken to ensure that the level of hemoglobin is within normal limits. Some people develop side effects to these iron supplements like diarrhoea and abdominal pain, therefore, care should be taken in choosing the appropriate supplement.
- **Drug Interactions**: Consuming calcium supplements along with iron supplements could interfere with iron absorption. Therefore calcium supplements and iron supplements should be taken at different times of the day.
- **Improve stomach acid**: Low stomach acid can lead to malabsorption of iron and many types of vitamins. Apple cider vinegar is considered to be good at altering stomach acid levels. Taking 1Tbsp of apple cider vinegar in 4 to 6 ounces of water, half an hour prior to mealtime, will help in improving stomach acid level. This helps in increasing breakdown and absorption of nutrients.
- **Control gastrointestinal infections**: Treat infections due to H.pylori and other small bacterial infections as they could lead to the development of leaky gut syndrome or low stomach acid level. Both these are associated with poor absorption of iron from the diet.

Genes analyzed: *NT5C3A, ALAS2, ABCB7, BCL11A, ITPA, RHAG, SLC4A1, KLHL30, YARS2, PUS1, PAH, TMPRSS6, SLC19A2, CUBN, DHFR, AMN, SLC11A2, BAAT, SLC25A38, GPI, HBB, GSS, SLX4, FANCD2, FANCC, FANCI, FANCF, FANCA, FANCM, FANCL, FANCE, BRIP1, POLG, ERCC4, RAD51C, PALB2, COX4I2, RPS19, TSR2, RPS26, RPL11, CDAN1, SEC23B, G6PD, BRCA2, BRCA1, TF, TERT, FANCG, AK1*

37. BETA THALASSEMIA

Mild: Likely low genetic risk for beta thalassemia

Beta thalassemia is a condition in which there is a reduction in the production of hemoglobin. This condition is highly prevalent in the Mediterranean countries with an annual incidence of symptomatic individuals being 1 in 100,000 people. People of certain genetic types are at a higher risk of developing beta thalassemia and affected infants may exhibit symptoms like: **turning pale, feeding problem, recurrent fever, liver and abdominal enlargement.**

Gene markers analyzed: 47
Gene markers present in your genome data: 24
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Regular Blood transfusions**: Beta thalassemia is characterised by lower hemoglobin levels, so regular blood transfusion will be carried out.
• **Safe marriages**: In order to lower the risk of an offspring from developing this condition, people who carry the high genetic risk variants for beta thalassemia are advised to marry an individual at low risk for the condition.

Genes analyzed: *HBB, HBBP1*

38. HEMOPHILIA

Mild: Likely low genetic risk for hemophilia

Hemophilia is a condition in which there is excessive bleeding because of poor blood clotting. The worldwide prevalence of hemophilia is around 400,000 people. People of certain genetic types have a higher risk of developing hemophilia and may exhibit symptoms like: **pain in the joints, internal bleeding, swollen joints and prolonged periods.**

Gene markers analyzed: 3
Gene markers present in your genome data: 3
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **First aid during minor injury**: Pressure and bandage may be applied to the site of injury to prevent bleeding. When minor internal bleeding beneath the skin is suspected, then placing an ice pack at the site of injury will help control bleeding.
- **Desmopressin**: This hormone helps in improving clotting of blood by stimulating clotting factors. This is usually injected by a physician or available as a nasal spray.
- **Fibrin sealants**: This sealant can be applied directly to the site of injury to promote wound healing and clotting. This is used particularly during dental procedures.
- **Physiotherapy**: Intense physiotherapy sessions may be required to manage pain in the joints due to internal bleeding. In extreme cases, surgical intervention may be required.
- **Maintain Iron levels**: For every 15ml loss of blood there is a loss of 0.75micrograms of iron. Ensure sufficient intake of iron rich foods that include broccoli, poultry, lean red meat, liver, green leafy vegetables and raisins. Increase intake of vitamin C rich foods too as they increase absorption of iron.
- **Include Vitamin K rich foods**: Vitamin K helps in the clotting of blood and intake of foods rich in this vitamin is beneficial. Kale, brussels sprouts, cabbage, parsley, eggs and fish contain vitamin K.

Genes analyzed: *F9, F8*

39. GLYCOGEN STORAGE DISEASE

Moderate: Likely moderate genetic risk for glycogen storage disease

Glycogen storage disease is a condition characterised by deficiency in enzymes associated with glycogen synthesis and glycogen breakdown. The prevalence of this condition is 1 in 20,000 people. People of certain genetic types have a higher risk of developing glycogen storage disease and may exhibit symptoms like: **bruising easily, low blood sugar, abdominal bloating, slow growth and weak muscles and muscle cramping.**

Gene markers analyzed: 119
Gene markers present in your genome data: 98
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Maintain optimal blood sugar levels**: People with glycogen storage disease should be careful about the food consumed to prevent excess storage of glycogen in the liver. However, there is a risk of hypoglycemia. Raw corn starch powder is provided throughout the day as this is a complex carbohydrate and the body takes a longer time to break it down. This ensures that the blood glucose levels are maintained for a prolonged period.
- **Eat Frequent Meals**: An impaired enzyme could result in hypoglycemia among people with glycogen storage disease. Children and adults should eat every 1 to 3 hours during the day and 3 to 4 hours during the night. Extremely low blood sugar levels could lead to seizures.

Genes analyzed: *PFKM, PYGL, PYGM, GBE1, GAA, G6PC, GYG1, PGAM2, AGL, ENO3, PHKB, GYS1*

40. RHEUMATOID ARTHRITIS

Mild: Likely low genetic risk for rheumatoid arthritis

Rheumatoid arthritis is an autoimmune disorder that affects the joints. This chronic condition is found to affect 1% of the population. People of certain genetic types are at a higher risk of developing rheumatoid arthritis and should watch out for signs that include: **stiffness, tenderness or swelling in the joints, fatigue, feeling of pins and needles and lumps of redness on the skin.**

Gene markers analyzed: 149
Gene markers present in your genome data: 137
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.

- **Quit Smoking**: Smoking is found to accelerate the condition and lead to greater joint damage. In a study conducted to identify how smoking increases risk for rheumatoid arthritis, it was found that smoking leads to citrullination of protein. Gene variations that predispose to rheumatoid arthritis have been associated with increasing immune defence against such proteins, leading to autoimmune disorders like rheumatoid arthritis.
- **Lose weight**: People who are overweight are at a higher risk of developing rheumatoid arthritis, especially among people younger than 55 years.
- **Breastfeeding and risk of rheumatoid arthritis**: In a study conducted on 121,700 women, it was found that breast feeding for longer than 12 months significantly reduced the risk for rheumatoid arthritis. Early menarche (earlier than age 10) was found to increase risk.
- **Include Vitamin D rich food in the diet**: In a study conducted on 29, 398 women, increased intake of vitamin D was associated with lower risk of rheumatoid arthritis.
- **Intake of antioxidant rich foods**: A diet high in antioxidant micronutrients, specifically beta cryptoxanthin and Zinc supplementation, along with a diet high in fruits and vegetables is found to have a protective effect against rheumatoid arthritis.

Genes analyzed: *ICAM3, TNPO3, GUCY1B2, LINC01104, ARHGEF3, ALS2CR12, TRHDE, UBASH3A, GMCL1P1, GATSL3, ARID5B, PHF19, CDK5RAP2, DPP4, REL, FAM107A, LINC00824, CCR6, SPRED2, RAD51B, AIRE, NFKBIE, PADI4, CD226, C5orf30, PLD4, TEC, WDFY4, MTF1, PTPN2, ANXA3, RTKN2, TRAF1, PDE2A, EOMES, CD40, CDK6, PLCL2, DKFZp667F0711, MECP2, JAZF1, ACOXL, ANKRD55, SFTPD, RABEP1, RPP14, RASGRP1, SYNGR1, PPIL4, LOC101929739, FADS2, STAG1, SLC6A11, ETFA, MDGA2, ZNF175, SPSB1, PSMA4, LOC100130458, ELMO1, CD247*

41. SCOLIOSIS

Moderate: Likely moderate genetic risk for scoliosis

Scoliosis is a medical condition in which the spinal cord of an individual is curved sideways. This condition is prevalent among 2 to 3% of the general population.People of certain genetic types are at a higher risk of developing scoliosis and may exhibit symptoms like: **Back pain, muscle spasms, muscle deformity and an uneven waist.**

Gene markers analyzed: 13
Gene markers present in your genome data: 11
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Screen at frequent intervals**: People at high risk should get screened frequently as early detection will help in preventing deterioration. Curves among skeletally immature can lead to highest risk of progression.
- **Maintain a good posture**: Always sit with your back straight and with the right support. The body weight should be spread evenly on the hips and the feet should be placed flat on the ground.

Genes analyzed: *EXT2, NF1, GDF3, NSD1, SH3TC2, FBN1, MAGI1*

42. MULTIPLE SCLEROSIS

Moderate: Likely moderate genetic risk for multiple sclerosis

Multiple sclerosis is an autoinflammatory debilitating disease that affects the brain as well as the spinal cord. The prevalence of multiple sclerosis in the U.S is 90 per 100,000 population and it affects 2.5 million people worldwide. People of certain genetic types are at a higher risk of developing multiple sclerosis and may exhibit symptoms like: **cramping, inability to move, involuntary movements, muscle spasms, poor balance, weakness.**

Gene markers analyzed: 101
Gene markers present in your genome data: 93
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Living in low latitudes may be better for MS**: The presence of low vitamin D or insufficient exposure to the sun's rays are independent risk factors for MS. Therefore the risk of MS is lower in low latitudes. A study found that people who had lower than 30 nanomoles of Vitamin D per litre were at an increased risk of MS.
- **Quit smoking**: Cigarette smoking is associated with an increased risk of MS. Moreover, smoking is found to progress the disease more rapidly, so people with MS who smoke, should quit immediately.
- **Maintain a healthy weight**: Studies have shown that being overweight at 20 years increases risk of MS by two fold. An increase in weight is also associated with lowered absorption of vitamin D, which could also contribute to the increased risk of MS.
- **Increase Omega 3 intake**: An increase in intake of omega 3 fatty acid rich sources is associated with a decrease in risk for MS, probably due to the anti-inflammatory properties. Fatty fish is a good source of omega 3. In a study conducted to identify the methods of preventing MS, it was found that eating fatty fish at least once a week lowered risk by 45%.
- **Watch out for infection from Herpes virus:** Epstein Barr virus (EBV), which belongs to the Herpes family of viruses is associated with an increased risk of MS. A study conducted showed that there was significantly higher levels of antibodies against the virus in people who eventually developed MS than among people who did not.

Genes analyzed: *SUMF1, LINC01551, LEKR1, MET, C1GALT1, CLSTN2, HLA-DRA, TNFRSF1A, BRINP1, RREB1, TLL1, NCKAP5, SYK, VAV2, DLEU1, RPS6KB1, ERG, ASAP1, CHST12, SP140, CLECL1, KIF1B, TNFSF14, AHI1, SLC30A7, EVI5, BACH2, AGAP2, IL2RA, CD58, MERTK, CD6, LOC101928791, CYP24A1, MAPK1, STAT3, BATF, DKKL1, NCOA5, LOC285626, ZNF767P, FCRL3, SLC15A2, PVT1, RNASEL, EGFL6, LOC100506047, IL7R, MALT1, C1orf106, MPV17L2, CD86, CBLB*

43. ULCERATIVE COLITIS

Mild: Likely low genetic risk for ulcerative colitis

Ulcerative colitis is an inflammatory bowel disease which is characterised by the inflammation of the rectal and the intestinal mucosa. According to The Centres for Disease Control and Prevention (CDC), there are between 37 to 246 new incidences per 100,000 persons every year in the U.S. People of certain genetic types have a higher risk of developing ulcerative colitis and may exhibit symptoms like: **abdominal pain, bloody stools, weight loss, rectal pain, joint pain, skin problem and increased abdominal sounds.**

Gene markers analyzed: 110
Gene markers present in your genome data: 103
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.

- **Helicobacter pylori**: Children raised in a sanitised environment and with lower exposure to enteric microorganisms are found to have greater susceptibility to ulcerative colitis. *Helicobacter pylori* is an infection that is commonly acquired during childhood and is associated with poor sanitary facilities and overcrowding. A large meta analysis of 23 studies showed that infection with H.pylori was negatively associated with ulcerative colitis, suggesting a protective benefit.
- **Appendectomy:** A meta analysis has found that children who had an appendectomy below the age of 10 years had a lower risk of developing ulcerative colitis.
- **Diet**: Diet has been considered an important risk factor in the development of ulcerative colitis. A high intake of mono and polyunsaturated fatty acids has been associated with an increased risk of ulcerative colitis.
- **Breast Feeding**: Breast feeding has been shown to lower the risk of developing ulcerative colitis. Breastfeeding provides oral tolerance to microflora as well as for food antigens, which reduces the risk for ulcerative colitis.

Genes analyzed: *HDAC9, PTPRC, EPHB4, PLCL1, SATB2, CACNA2D1, LAMB1, IL23R, ITGAL, ETS1, PTGIR, MROH3P, GNA12, CCNY, RNF186, ZFP90, SMAD3, CCDC26, HLA-DRA, DENND1B, C5orf66, NR5A2, CHP1, C21orf33, IL7R, PARK7, GPR35, NFKB1, TRAF3IP2-AS1, CFB, OTUD3, MAML2, IL17REL, PROCR, NXPE1, HLA-DQA1, SLC39A11, CD226, LOC100996583, C1orf106, PUS10, GPR65, LSP1, APEH, SFMBT1, BSN, TCF4*

44. CROHN'S DISEASE

Mild: Likely low genetic risk for crohn's disease

Crohn's disease is a chronic inflammatory disease which is characterized by inflammation of the lining of the digestive tract. In the U.S 780,000 people live with Crohn's disease. People of certain genetic types have a high risk of developing crohn's disease and may exhibit symptoms like: **abdominal pain, abdominal bloating, diarrhoea, fatigue, cramping, loss of appetite and blood in the stool.**

Gene markers analyzed: 155
Gene markers present in your genome data: 145
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Maintain a food journal**: Certain types of food may aggravate symptoms in people with Crohn's disease. Identify such foods and lower consumption. Complete elimination of food types like grains or sugar rich foods is not recommended. Moreover, eating six small meals may be better than eating three large meals.
- **Increase iron intake**: Chronic intestinal bleeding could result in iron deficiency. Supplementation with iron supplements may be necessary.
- **Calcium and Vitamin D**: People with Crohn's disease are at an increased risk of osteoporosis and should take sufficient amount of calcium and vitamin D rich foods.
- **Exercise regularly**: Even mild exercise is known to benefit people with Crohn's disease. Exercise could help normalize bowel function, lower stress and relieve symptoms of depression.
- **Reduce environmental triggers**: Environmental triggers like pollen and certain bacteria could trigger inflammation in the gastrointestinal tract. Wearing a mask and using special air filters at home could help lower exposure to such triggers.

Genes analyzed: *CLCA2, MAGI1, ADAM30, JAK2, PARK7, ANKRD55, RUNX3, KSR1, GAL3ST2, IL23R, PSMB10, TYK2, PUS10, ATG16L1, MAP3K8, SKAP2, BRD2, MUC19, LOC101927076, PTRF, CDC37, CCNY, C5orf56, SBSPON, IL2RA, BANK1, DNMT3A, SLC22A23, MYRF, CPEB4, BACH2, PTPN2, DENND1B, SBNO2, IL18RAP, NOD2, UBE2L3, ITLN1, IFNGR2, FGFR1OP, ERAP2, PER3, LACC1, TNFSF15, OSMR, ZGPAT, LOC285626, PLCL1, SLAIN2, CDKAL1, ZNF365, ZBTB38, C21orf33, MLN, KIAA1109, LINC00492, JAZF1, RSPO3, STAT3*

45. VITILIGO

Moderate: Likely moderate genetic risk for vitiligo

The skin gets its colour from the pigment melanin. The immune system of individuals with vitiligo recognizes the body's own melanocytes as foreign entities and attacks these cells in some areas of the skin, which is evident as white patches. In a study conducted to identify genetic factors associated with vitiligo, the risk among related individuals was 18 times higher than in the general population, suggestive of genetic influence. There exists an inverse association between vitiligo and melanoma (skin cancer), with studies suggesting that an increased immune surveillance may exist against melanoma for people who are at high risk for vitiligo. People of certain genetic types have a higher risk of developing vitiligo and may exhibit symptoms that include: **white patches on the skin.**

Gene markers analyzed: 32
Gene markers present in your genome data: 29
Potential risk variants detected in your genome data: 1
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult your physician for advice.
• **Restrict exposure to the sun**: Avoid exposure to UV rays from the sun as well as from artificial sources. Since there is a loss of melanin, there is an increased risk of sunburn. Applying a good sunscreen is recommended before stepping out into the sun.
• **Avoid tattoos**: Any form of trauma to the skin is associated with an increased risk, which includes getting a tattoo.
• **Topical corticosteroid**s: Your dermatologist may recommend the use of topical corticosteroid creams to prevent spread of the white patches.
• **Skin camouflage cream**: Camouflage skin creams are present to cover up the white patches.
• **Skin grafting**: Skin from a healthy and unaffected region of the body is removed and is used to cover the affected region.
• **Depigmentation**: This is recommended if there is more than 50% of skin affected by vitiligo. A depigmentation lotion is applied to remove remaining pigment from normal skin and a hydroquinone based lotion applied to prevent re-pigmentation.

Genes analyzed: *RPGRIP1L, TICAM1, ZMIZ1, SMOC2, LPP, SLC1A2, IKZF4, HERC2, SLC44A4, RNASET2, C1QTNF6, BACH2, CASP7, HCG9, ATXN2, RERE, IL2RA, LOC101929163, GZMB, TG, FANCA*

46. ALOPECIA AREATA

Mild: Likely low genetic risk for alopecia areata

Alopecia areata is an autoimmune condition in which there is loss of hair in one particular part of the body or throughout. It is also known as spot baldness. The prevalence of this condition among the general population is 0.1-0.2%, with a lifetime risk of nearly 2%. People of certain genetic types are at a higher risk of developing alopecia areata and may exhibit symptoms like : **hair loss, itching, anxiety and broken nails.**

Gene markers analyzed: 6
Gene markers present in your genome data: 5
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.
• **Lower stress**: Stress is known to be an important trigger for this condition. Learn to manage stress levels and engage in stress relief therapies like yoga and group physical activity.
• **Eat a healthy diet**: A diet that is rich in calcium, iron and antioxidants is known to benefit and to lower risk of alopecia areata.
• **Foods rich in quercetin**: A study showed that quercetin, a bioflavonoid with anti-inflammatory properties was associated with lower risk of alopecia. Foods rich in quercetin include broccoli, kale, apples, cherry, bell pepper and red wine.
• **Control for other risk factors**: A diet high in sugar, alcohol consumption and smoking are associated with aggravating inflammation,which is one of the major factors for the development of this condition.

Genes analyzed: *IL2RA*

47. ANOREXIA

Mild: Likely low genetic risk for anorexia

Anorexia is a psychological eating disorder. The onset of this condition is during early adolescence or young adulthood, constituting 3% of all eating disorders. People of certain genetic types are at a higher risk of developing anorexia and may exhibit symptoms like: **dizziness, fatigue, low blood pressure, anxiety, extreme weight loss.**

Gene markers analyzed: 13
Gene markers present in your genome data: 12
Potential risk variants detected in your genome data: 0
Potential pathogenic variants detected in your genome data: *None*

Recommendation

If you recognise any symptoms of this condition, consult a qualified physician for diagnosis and treatment of this condition.

- **Ensure a healthy body weight**: People with anorexia often are thin but they continue to work towards losing weight in order to cater to a 'specific' body image. Prolonged fasting and excessive exercising are some of the measures that are undertaken and which have shown to take a toll on health.
- **Avoid activities or images that trigger anorexia**: Fashion magazines and shows often are triggers for adolescence to lose excessive weight. Such triggers should be consciously avoided.
- **Seek counseling**: At the first sign of an eating disorder, seek professional help to overcome the condition.
- **Work on improving talent and qualification**: People with eating disorders are often associated with poor self-esteem which can be overcome by honing other talents for a sense of achievement.

Genes analyzed: *FAM155A, PPP3CA, ALDH4A1, CAMK1D, GRID1, WWOX, ZNF804B, SORCS2*

الشروط والأحكام وإخلاء المسؤولية

- جميع التحاليل المعلن عنها في متجر بندرجين الإلكتروني ليست تشخيصية وتنحصر الفائدة الإكلينيكية لها مع الأنماط والسمات الصحية لكل شخص بشكل منفصل عن الآخرين. يجب مراجعة الطبيب المختص قبل اتخاذ أي إجراء يتعلق بنتائج هذه التحاليل حيث لن يكون مركز بندرجين الطبي مسؤولاً عن أي إجراء يقوم به العميل استناداً على نتائج هذه التحاليل.
- لا يقوم مركز بندرجين الطبي (فرع شركة مشيج الطبية أو معهد البحوث والاستشارات بجامعة طيبة) بتقديم أي مشورة طبية بغرض التشخيص ولكن بدلاً عن ذلك فإننا نقوم بتزويدك بمعلومات علمية لفهم وتقييم المخاطر والفوائد الصحية المرتبطة بالنمط الوراثي الخاص بك. مركز بندرجين الطبي يحثك على استشارة الطبيب المختص أو أخصائي التغذية السريرية أو أخصائي الصحة العامة أو الممارس الصحي المؤهل للإجابة على الأسئلة الشخصية الخاصة بك.
- المعلومات التي تم تزويدك بها لا تلغي أو تستبدل أي تشخيص طبي أو نصيحة طبية يمنحها لك الطبيب المختص. كما أن المعلومات العلمية المقدمة لك ليست تشخيصاً وراثياً لأي حالة مرضية. لذلك يجب على الأفراد الذين لديهم مخاوف محددة بشأن حالتهم الصحية أو حالة مرضية محتملة أو أي معلومة خاصة بالاختبارات الجينية التشخيصية أن يقوموا باستشارة الطبيب المختص.
- إن المعلومات المقدمة من مركز بندرجين الطبي ليست شاملة ولا مطلقة، وقد لا تنطبق على حالة الشخص الفردية إذا أخذنا في عين الاعتبار أن المعلومات العلمية في وقت من الأوقات أصبحت غير دقيقة أو قديمة بسبب التقدم العلمي الجديد في مجال التحاليل الجينية والوراثية منذ تاريخ عمل ذلك التحليل. وبمجرد إرسال التقرير لك، فإن مركز بندرجين الطبي لن يقوم بإرسال أي معلومات أو تعليقات أو تحديثات أخرى بشأن التطورات الجديدة التي يتم اكتشافها لاحقاً.
- يُشكّل التقرير المرسل لك كامل نطاق المعلومات التي سيتم تقديمها لك بموجب هذه الاتفاقية. ولا يقدم مركز بندرجين الطبي أي ضمانات أو إقرارات، صريحة أو ضمنية، بأن هذه الخدمة سوف تلبي متطلباتك أو توقعاتك حسب نتائج التقرير. كما أن مركز بندرجين الطبي يقوم بإخلاء مسؤوليته عن أي مضاعفات صحية مترتبة على أي إجراء طبي يقوم العميل بإجرائه بناءً على نتائج التقارير المرسلة له.

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